MEDICAL AND SURGICAL EMERGENCIES

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MEDICAL

AND

SURGICAL EMERGENCIES

BY

WALTER CLINTON WALKER, M.D.

Member of the AMERICAN ASSOCIATION OF PHYSICIANS AND SURGEONS, ETC.

WITH ILLUSTRATIONS

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NOTE

The author has been in general and special practice for many years. Having attended the large hospitals of Europe, engaged in special work in London, Berlin and Paris, he has incorporated the results of his extensive experience, both in this country and in Europe, in the pages of the accompanying work, in the assurance that it will prove of the greatest practical value and assistance in the daily life of the household.

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PREFACE.

During my many years of general family practice, I have been called into homes,—sometimes in the dead of night, and out into the country; also at other times during the day, when a little medical knowledge on the part of parent or other member of the family would have prevented the unnecessary and untimely call and expense. I have found that often a little common sense and practical knowledge, properly applied, was just what was needed. I have also seen patients for whom valuable time was allowed to go to waste, before it was thought necessary to call the physician, generally owing to the lack of seeing the necessity for the services of a physician. Often the old adage was found true, that "an ounce of prevention is worth a pound of cure." In accidents and emergencies, a little knowledge is indispensable, as often a life may be saved and great suffering relieved, even before a physician can be secured. The baby may be taken with croup at night, as this is the time it generally occurs, and untold suffering and death may occur, if remedies are not promptly and intelligently utilized. Then, a loss of blood may occur from a ruptured or injured artery in almost any part of the body, and it becomes absolutely necessary that remedies be applied immediately by one possessing a little knowledge. The injurious consequences arising from a neglect of the study of the laws of nature, and of obedience to some of the more important ones, is often the cause of untold suffering and premature death. Those who reach the allotted three score years and ten are generally among those who have some knowledge of and obey the laws of nature. The statistics of our country show that more than one-fourth die in infancy, and not one-half pass the age of ten years. The knowledge of natural laws of the human constitution is indispensable to human happiness. You may possess a wealth of earthly goods, but without physical and mental health, your pleasures are few and sufferings many.

PREFACE.

It has been the object of the author in the preparation of this work, to avoid so far as possible, all scientific and technical terms and phrases, dealing with the subject in language which all may be able to understand, and to furnish such information as will aid the reader in the preservation of health, and in early recognition and treatment of some of the more common ailments constantly arising in the home.

If this work fulfills the above even to a limited degree, the efforts of the author will not have been in vain.

W. C. WALKER, M. D.

Detroit, Mich., 1903.

A FEW IMPORTANT SUGGESTIONS WITH REFERENCE TO SELECTING YOUR PHYSICIAN.

The choice of a family physician is an important matter, yet it is often made in the most haphazard manner. Remember that your doctor is to occupy almost the place of a member of your family. He will necessarily know most of your private affairs, domestic and otherwise. He is to be the confidant of your wife, and in more than one way, the adviser of your children. First of all, you want a skilful man; second, you need an honorable man; and third, a gentleman. The second and third qualifications are easily tested; as to the first you can judge only indirectly. Business success is by no means a criterion; the petted doctor of fashionable society is quite apt to be a wily fraud; even the man prominent in his own profession may be lacking in the combination of common sense and scientific acumen which makes the ideal physician. It is even difficult for one physician to pass a correct judgment on another unless he has been intimately associated with him and has had the opportunity to watch his work closely. Statistics and reports of cures are not a safe basis on which to estimate a physician's abilities, for the most dangerous and inevitably fatal cases tend to seek the highest medical wisdom. If your selection is to be governed by the results of practice, it is far safer to choose the man with the largest death rate than the one who boasts that he never lost a case. It is generally accepted that the physician who has laid a thorough foundation for a medical education has most probably been thorough in the superstructure of purely technical learning, and that the man whose good sense in ordinary affairs is manifest, is likely to display the same judgment in the practice of his profession.

A few dont's may be in order: Don't choose an intemperate physician. Don't choose one who has not the respect of his col-

leagues. Don't tolerate one who is constantly "slinging mud" at his brethren.

In choosing a specialist or consultant, you will naturally be guided by the recommendation of your family physician or by one's reputation. "Two heads are better than one," and it is no act of disloyalty on your part to your own physician, if you request the advice of another; and if your doctor is honorable and broad-minded, he will cheerfully acquiesce in your desire to have the assistance of some one of his colleagues. No self-respecting physician can desire to withhold from his patient any source of aid, or to retain a patient after the latter has shown the least disposition to seek advice elsewhere.

The obligation between physician and patient is a mutual one. The latter expects prompt and efficient service, at the sacrifice of convenience, social engagements, and perhaps, of comfort and health on the part of the former. On the other hand the physician has a right to expect prompt and full payment of financial obligations and the consideration of his convenience and recreation when emergencies do not prevent.

Do not expect your physician to diagnose your case in a moment. A physician thoroughly familiar with a person's temperament, physical condition and previous history, can guess very shrewdly at the nature of his trouble, and may be quite justified in at once assuring some nervous individual, that he has not this, that or the other disease of which he may be fearful. But, with such exceptions, the physician who makes a diagnosis without a careful investigation, usually including physical, chemical or microscopical examinations, or all three, is taking heavy risks of being in error.

A FALSE IDEA ABOUT NAMING ALL CASES OF SICKNESS.

A false idea prevails as to the possibility of assigning names to cases. Terms commonly understood, such as diphtheria, croup, quinsy, bronchitis, pneumonia, etc., are applicable in only about a third of all cases; perhaps another third is covered by purely technical expressions, while the remainder embraces cases so extremely simple or so complex that they must be described rather than named. The attempts of different physicians to translate

into simple language the technicalities of medical science often lead to apparent contradiction and to much undeserved criticism. In chronic cases—and these are the very ones which are the most apt to apply to a number of doctors—several organs are usually simultaneously involved. Different physicians will naturally locate the disease in one or another of these organs, and, in the attempt to explain the complex relations of one organ to another and to give the patient an understanding of a diseased organ, when he is ignorant of the action of that organ in health, it would be a surprising coincidence if any two doctors used expressions which the patient recognized as identical. Neither is the physician whose tongue is nimblest in finding a name always the one who best understands the disease. Dyspepsia, for example, is a high-sounding title and one which is very satisfying to the average patient; but a physician who really understood the stomach would feel that he was scarcely nearer the mark in using this term than in saying that the patient was sick. Neurasthenia is another dainty, diagnostic morsel; but the man who serves it is scarcely wiser than the one who says, "I don't know what to call your trouble, but you are simply worn out and nervously unstrung, and you need a rest."

Fevers usually divulge their nature little by little. The clinical thermometer makes it an easy matter to say whether a patient has a fever or not—mere sensations of heat or "feverishness" are utterly unreliable—but the question immediately presents itself, What kind of a fever? To this question the honest physician at his first visit must usually reply "I do not know," unless he has been summoned after diagnostic symptoms have developed. Scarlet-fever cannot be positively diagnosed in less than twenty-four hours, measles in less than three days, typhoid fever in less than five or six days. The dislike to avow even a pardonable ignorance has led some really honest men to use expressions that are misleading and untruthful.

Few persons not thoroughly versed in medical art appreciate the true value of medicines. For example, a patient has passed successfully through an attack of bronchitis, having taken a certain prescription. The common opinion is that the same prescription will be "good" for another attack of the same disease, either in the same or another patient. As a matter of fact, most

medicines are given without reference to the disease which is in progress, but to produce very limited physiological changes or to control symptoms which may be common to many diseases. There is no disease which can always be appropriately treated by the same prescription and only a very few in which a particular drug may be said to be specific. It will be readily understood that patients of different age, sex and temperament require very different dosage, but leaving this point aside, the prescription which was excellent in one case of bronchitis may be utterly worthless or even harmful in another, while it might be well adapted to certain cases of pneumonia or gastric catarrh or other conditions.

In conclusion, it must be borne in mind that tremendous responsibilities devolve upon the physician, responsibilities which are not so much financial as moral. He can no more make restitution for an error than can the pilot who has steered the ship on to a rock. Accurate knowledge, common sense, a clear brain, self-reliance, and absolute conscientiousness, are all needed.

It is not enough for the physician to do the correct thing. Many a patient has been sacrificed through conservatism and failure to keep abreast with modern progress, yet no one could say that his treatment was unauthorized or wrong.

The physician whose practice is the crystallized knowledge of ten years ago, is no more competent than the pilot who has not visited a harbor or river for the same length of time.

Select your pilot deliberately, having regard both for his experience and his technical knowledge; then rely upon his judgment implicitly, and do not discharge him while in active service, unless for the most weighty reasons.

THE WONDERFUL CONSTRUCTION OF THE HUMAN BODY.

TONGUE, THROAT, STOMACH AND LUNGS—THE HEART AND THE CIRCULATION OF THE BLOOD—THE BRAIN AND SPINAL COLUMN—SOME REMARKABLE LAWS OF NATURE—THE HAND, THE FOOT—THE MUSCULAR AND NERVOUS SYSTEMS.

The human body is a miracle of mechanism. In a marvelously small space are placed a vast number of cells, pores, tissues, muscles and nerves—constant, tireless, faithful servants of the body. The life and activities of an entire city are paralleled in a minified form in the human body. No work of man can compare with it in the exquisite accuracy of its processes, the wondrous economy of its workings, the simplicity of its laws, the ingenuity of its mechanism, and the perfect harmony and cooperation of so many varied interests. All this mechanism acts automatically and continuously, yet above and beyond this human machinery is mind, the wonderful, immortal part of man, governing all his activity.

In the human face there are but seven elements: Forehead, eyes, nose, mouth, chin, cheeks and hair. These may be called the seven notes of the face. Nature can sing these seven notes in but three changes or in three keys: color, size and shape. And in using merely these seven notes in three keys she has sung billions of human symphonies into the world, without a duplicate.

More than half the weight of our bones, three-fourths of the weight of our muscles, and seven-eights of our blood, or about three-fifths of the weight of the whole body, is water.

The average weight of a man's skeleton is about fourteen pounds, and its height one inch less than the living man. The skeleton of the leathery-winged bat is, bone for bone and joint for joint, similar to that of man.

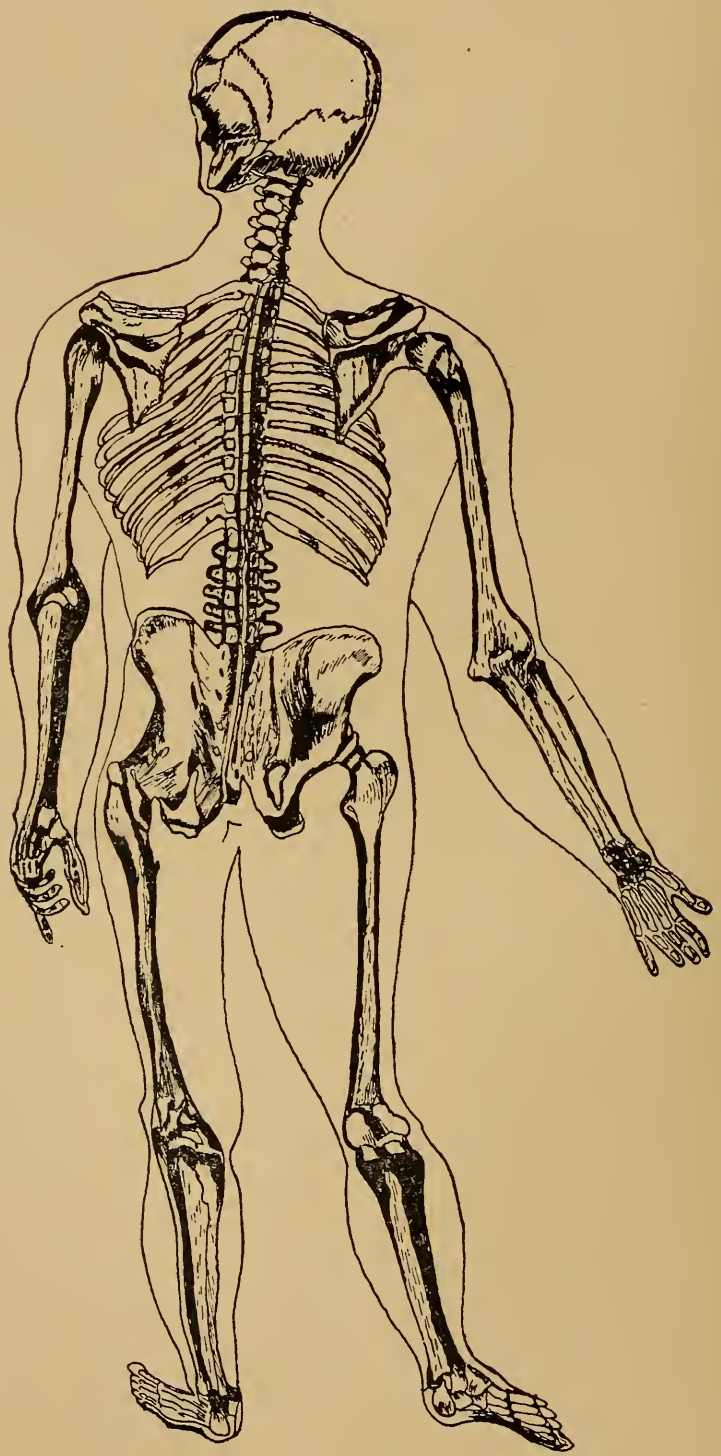

Fig. 1. Human skeleton.

It is a strange fact that on so simple a question as the number of bones in the human body, anatomists are not unanimous. The usual figures give the number as two hundred and six, not counting the thirty-two teeth. The distribution is: skull, twenty-two; ears, six; trunk, fifty-four; upper extremities, sixty-four; lower, sixty.

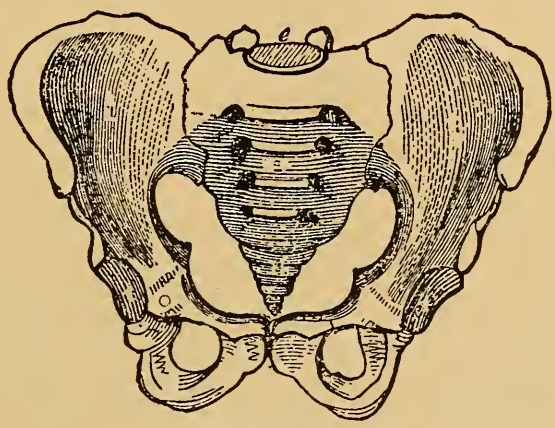

Fig. 2. The pelvis.

Nature abhors a straight line, so there is not a straight bone in the whole body. All are bent and twisted—some in two or three directions, and the surfaces joining separate bones are invariably oblique to each other.

TONGUE, THROAT, STOMACH AND LUNGS.

Taste is not equally distributed over the whole tongue. There are three distinct regions or tracts, each having its special office. The tip of the tongue is concerned with pungent and acid tastes, the middle portion is sensitive chiefly to sweets or bitters, while the back or lower portion confines itself entirely to the flavors of rich, fatty substances. Every piece of food thus undergoes three distinct examinations.

The length of the vocal cords in men and women differs as follows: In man, when at rest, their length is about seventy-seven-one-hundredths of an inch long. In woman their length varies from fifty-one-one-hundredths to sixty-three-one-hundredths of an inch.

Though there are only nine perfect tones in the human voice there are the astounding number of 17,592,115,044,415 different sounds. Of these, fourteen distinct muscles give 16,382, and thirty other muscles produce 173,741,823, while all, in co-operation, form the above total.

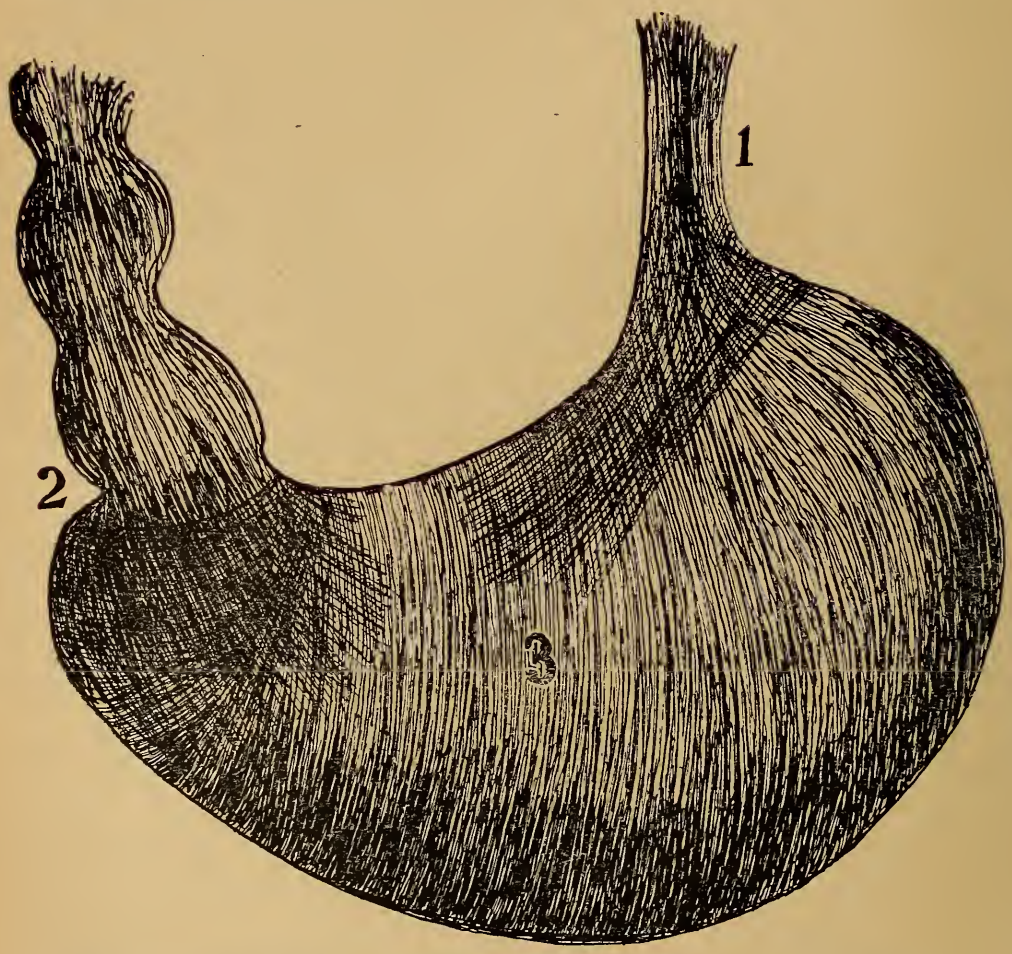

Fig. 3. No. 1, esophagus, or gullet; 2, the pylorus or lower orifice of the stomach entering the intestines; 3, the stomach.

The stomach, or laboratory where the blood is manufactured from food, is a pouch, shaped much like the bag-pipe of the Highlanders. In it are numberless lines of little tubes or glands, covering the whole interior with these microscopic urns, making in all about 5,000,000. Each one of these is a complete chemical laboratory, for the manufacture and distribution of gastric juice.

The average man takes five and a half pounds of food and

drink each day, amounting to one ton of solid and liquid nourishment annually. In seventy years he eats and drinks one thousand times his own weight.

Every time we breathe, nearly one hundred muscles are employed—forty per cent. of the muscles of the body acting in wonderful cooperation during this single act.

The surface of the lungs, if spread flat, would equal 2,642 square feet. The lungs contain 175,000,000 cells, which, placed side by side, would fill a space thirty times greater than that of the human body. An adult man respires from sixteen to twenty times a minute, or about twenty thousand times a day, the amount of air inspired being ten thousand quarts, or eighty barrels, every twenty-four hours. In one year 100,000 cubic feet of air are drawn into the lungs, and then expelled by nearly nine million separate and complicated actions of breathing, to aerate more than thirty-five hundred tons of blood.

THE HEART AND CIRCULATION OF THE BLOOD.

Man has within him a stationary engine called his heart, which, with its veins and arteries, constitutes a perfect system of hydraulics, compared with which man's best work is clumsy, intricate, and wasteful. The lungs are automatic bellows, the most perfect method of sanitary ventilation. The stomach is a working vat of marvelous perfection. The brain is a wondrous condenser, and the skin is a great working evaporator, with reserve automatic appliances, ready for extra work in moments of need. Most of these are in action at all times, day and night, tireless, unceasing, self-winding and repairing, for seventy years, more or less.

The blood in the system is about one-thirteenth of the weight of the body. So microscopic is the mesh in this network of capillaries, that touching the body with a needle at nearly any point will open a blood vessel.

Blood consists of a transparent, colorless fluid, the *liquor sanguinis,* and the corpuscles, or minute, solid bodies which float in it. The fluid is water, in which are dissolved fibrin, phosphates of soda, albumin, chlorides of sodium and potassium, lime, magnesia, and other substances. In every teaspoonful of human

blood there are fifteen billion red blood corpuscles and thirty million white ones, there being three hundred and fifty to five hundred times as many red as white corpuscles. The red globules are small, bi-concave discs one-thirty-two-hundredth of an inch in width. The entire body contains about twenty-six and a half million millions, and if placed side by side they would stretch 130,910 miles, over five times around the earth.

Nature guards the heart very carefully. It is in a membranous bag, which holds it easily and loosely, without impeding its motion. This bag contains about a spoonful of fluid to keep the heart's surface supple and moist. This sac is placed between two soft lobes of the lungs, is tied to strong membranes, and is further sustained by the great blood vessels issuing from it.

The mileage of the blood circulation is astounding. Assuming the heart to beat seventy times a minute at ordinary pressure, the blood travels at the rate of two hundred and seven yards a minute, seven miles an hour, one hundred and sixty-eight miles a day, and 61,320 miles a year. In man's allotted life, seventy years, the distance traveled by the blood would be 4,292,400 miles, or just about eighteen times the distance from the earth to the moon.

In man the average pulse is seventy times a minute; in woman seventy-eight a minute. In a year a man's heart beats 36,291,240 times, in seventy years it has pulsed 2,540,386,800 times. It sends through the lungs every day about five thousand gallons of blood; every year 1,826,250 gallons, and in seventy years 127,837,500 gallons—enough to fill a lake one mile long, two hundred and fifteen feet wide and fifteen feet deep. Every day the heart does work equal to lifting one hundred and twenty-five tons, which in seventy years would be equivalent to raising 3,193,750 tons. This remarkable work is kept up day and night by the heart—a hollow muscle about the size of an adult fist, weighing from ten to twelve ounces in a man, and in a woman somewhat less.

Every tooth has an artery to feed the bone, a vein to bring back the drained blood, and a nerve for sensation. These three pipes entering through a hole in the root of the tooth, when combined, do not equal the thickness of a horse-hair.

Fig. 4. Heart laid open. No. 1, right ventricle; 2, right auricle; 3, aorta; 4, pulmonary artery; 5, the apex.

THE BRAIN AND SPINAL COLUMN.

In the human brain it has been calculated that the gray matter alone contains no less than 600,000,000 cells; each cell consists of several thousand molecules, and each molecule again of many millions of atoms.

Fig. 5. Section of human brain.

The brain is divided lengthwise into two halves, spoken of as the lobes of the cerebrum. Its shape is beautifully exemplified by the meat of an English walnut. Each half is practically a replica of the other, although in the majority of persons the left half is larger than the right half. Each half of the brain governs, or is concerned with, the movements and general control of the opposite half of the body. The brain has been divided into sections, governing ideas and images of distinct classes. Certain areas of brain surface are recognized as controlling vision, hearing, taste, smell and vocal speech, while others govern the muscular mechanism of the body.

The average weight of the male brain is forty-nine and a half ounces; of the female, forty-four ounces—a difference of over five ounces.

The spine or backbone is a chain of joints consisting of twenty-four bones, no two alike, marvelously contrived for an infinity of movements, and the harmonizing of manifold and diverse duties. It is firm and yet flexible; it is a pipe to convey the important medullary substance from the brain; it is a pole from which are strung the nerves—the telegraph wires of the body. It is the basis from which the muscles of the body take their origin, and it is a meeting place and binder for the ribs. No piece of machinery made by man can compare with it in ingenuity, simplicity, safety, rapidity of action and non-interference of its parts.

Fig. 6. The brain uncovered.

The first vertebra is called by anatomists Atlas, because it supports the head, as the mythologic Atlas supports the world. There are two joints at the neck, one a hinge joint and the other a mortise and tenon, by which the head is mounted, as a telescope is set on its stand, so that the head can be raised or lowered, turned sidewise, and moved backward or forward.

SOME REMARKABLE LAWS OF NATURE.

A man will die for want of air in five minutes, for want of sleep in ten days, for want of water in a week, and for want of food at varying periods, dependent upon circumstances.

The delicacy of the sense of touch is marvelous. The fourth jewel wheel-screws of a watch, though they have two hundred and sixty threads to the inch, look like dust. They are one-four-thousandth of an inch in diameter, and a lady's ordinary thimble would hold 100,000 of them; yet after being hardened and cut they are placed by the hand very rapidly in frames, with their heads up. This is done by touch alone.

When one falls asleep the order of surrender to the spell is: sight, taste, smell, hearing, touch. The sense of touch is the lightest sleeper and most easily awakened, then hearing, then sight, while sluggard taste and smell awaken last.

The human body is an epitome in Nature, of all mechanics, all hydraulics, all architecture, and all machinery of every kind. There are more than three hundred and ten mechanical movements known to mechanics today, and all of these are but modifications of those found in the human body. Here are found all the bars, levers, joints, pulleys, pumps, pipes, wheels and axles, ball and socket movements, beams, girders, trusses, buffers, arches, columns, cables and supports known to science. At every point man's best mechanical work can be shown to be but adaptations of processes of the human body, a revelation of first principles used in Nature.

THE HAND, THE FOOT, AND THE HAIR.

The average growth of the finger nail is one-thirty-second of an inch a week, or a little more than an inch and a half a year. The growth is faster in summer than in winter, and varies for different fingers. The average time for each finger nail to grow its full length is about four and a half months, and at this rate a man of seventy would have renewed his nails one hundred and eighty-six times. Taking the length of each nail at half an inch he would have grown seven feet nine inches of nail on each finger, and on all his fingers and thumbs an aggregate length of seventy-seven feet six inches.

In the foot is seen the "mechanical short-cut" of passing one tendon through a slit made in another, the long tendon which bends the first joint of the toe passing through the short tendon bending the second joint, a device allowing the sinew more liberty and power.

The thickness of the human hair varies from one-two-hundred-and-fiftieth to one-six-hundredth of an inch, blond hair being the finest, and red the coarsest. The hair pigment is supplied by the hair bulb. It is said that hair may turn white during violent emotion if the hand be laid upon it.

By a careful estimate it has been discovered that the number of hairs on a well-covered head varies from 90,000 to 120,000. Blond hair is generally the most luxuriant, then comes brown, then black. On the minimum basis, a woman whose hair is half a yard long has about thirty miles of tresses.

THE MUSCULAR AND NERVOUS SYSTEMS.

The muscles are bundles of fibres, each fibre being a bundle of fibres, and each of these may be separated, the smallest actual fibres being one-four-hundreth of an inch in diameter. Each fibre is wrapped in a fine, pellucid sheath, a mere film put around it to keep it together.

There are in the body five hundred and twenty-seven muscles —two hundred and sixty-one pairs and five single ones. The bones and muscles combined are capable of over twelve hundred different movements.

The muscle which acts upon the heel is one of the largest and most powerful in the body, for in raising the heel it has to raise the whole weight of the body.

There are forty pairs of nerves that start from the base of the brain and spinal cord, like telegraph wires. These may be called the "main lines," and with their connections and branches number 10,000,000. The nerve cells—stations or batteries for the transfer of power—are millions in number, some of them having a diameter of only one-five-thousandth of an inch.

Fig. 7. External view showing muscles of the side and back.

THE EYE, THE EAR AND THE NOSE.

Description of Foreign Bodies and How to Remove Them.

The eye is a perfect photographer's camera. The retina is the dry plate upon which are focused all objects by means of the crystalline lens. The cavity behind this lens is the camera. The iris and pupil are the diaphragm. The eyelid is the drop-shutter. The draping of the optical dark room is the only black membrane in the entire body. This miniature camera is self-focusing, self-loading and self-developing, and takes millions of pictures every day, in colors, and enlarged to life-size.

Charts have been prepared showing that the eye has seven hundred and twenty-nine distinct expressions, conveying as many different shades of meaning. The eye is subject to forty-eight diseases—more than of any other organ. There are 300,000 fibres in a single optic nerve.

The retina of the eye, a continuation of the optic nerve, though it is no thicker than a piece of paper, consists of nine distinct layers, the innermost composed of rods and cones. These are supposed to be the immediate recipients of the undulations of light, and are so numerous that in each eye the cones are estimated at over three million and the rods at over thirty million.

The power of color perception is overwhelming. To perceive red the retina of the eye must receive three hundred and ninety-five million vibrations in a second; for violet it must respond to seven hundred and ninety million vibrations in a second. In our waking moments our eyes are bombarded every second by at least six hundred million million vibrations.

Each ear contains a perfect miniature piano of about three thousand double fibres or strings of unequal thickness and length, and stretched or relaxed in unison with exterior sounds. The longest cord of this marvelous instrument is about one-fiftieth of an inch; the shortest of about one-five-hundreth of an inch.

The three thousand strings are distributed through a register of seven octaves, each octave corresponding to about four hundred fibres, every half tone being sub-divided again into thirty-two others. The deepest or gravest tone that it is possible for us to hear has thirty-two vibrations per second; the highest, the shrillest, has about seventy thousand.

The delicacy of the sense of smell almost surpasses belief. A single grain of musk has been known to perfume a room for twenty years. At the lowest computation that grain of musk must have been divided into three hundred and twenty million million particles, each individually capable of affecting the organs of smell.

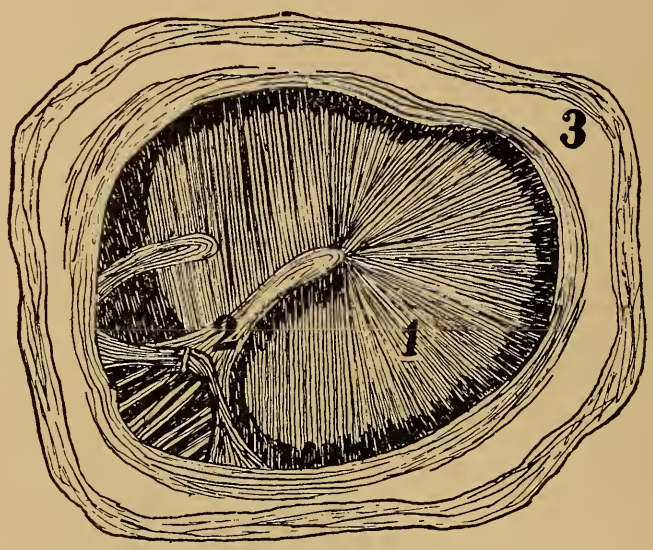

Fig. 8. Middle ear. No. 1, drum membrane; 2, internal bones of the ear; 3, external bones of the ear.

HOW TO REMOVE FOREIGN BODIES IN THE EYE, NOSE AND EAR.

Foreign bodies in the eye. Small substances like cinders, dust or small chips of stone or metal, can usually be removed from the eye by very simple means. Sometimes there is at once a free flow of tears which washes them out. At others, the common way of catching the upper eyelid by the lashes and pulling it away from the eyeball and down over the lower lid, then letting it go so that as it recedes its under surface is swept by the lashes of the lower lid, will clear it out.

If this does not prove successful, a loop made of horse hair, or

a long human hair, can be passed under the lid and swept, from the outer side, toward the nose and drawn down. This may serve the purpose.

If it does not, the upper lid must be everted, or turned inside out. This is easy to do. One way is to seize the lashes between the thumb and first finger, and to draw the edge of the lid away from the eye-ball. At the same moment the end of the second finger is pressed against the skin of the lid above its edge. The patient is now told to look down, and, as he does so, the lashes and edge of the lid are pulled upward toward the eye-brow, while the upper part is tucked under it with the end of the second finger. Another plan is to draw the lid down, take a slender pencil, or knitting or crochet needle, and place it against the eye-lid, parallel to and one-third of an inch above the edge, and then to pull the edge up and turn it over this by means of the lashes.

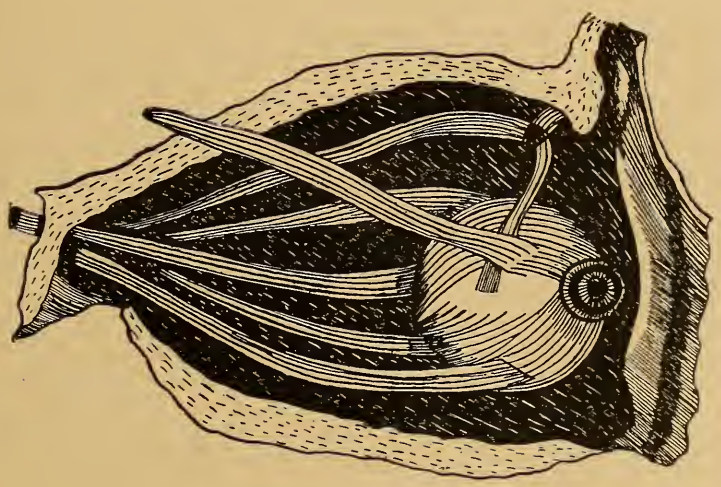

Fig. 9. View showing muscles of the eye.

The lower part of the eye is easy to examine, because the lower lid is so easy to turn down.

In this way a large part of the eye-ball and eyelid can be examined and any foreign substance removed. A magnifying glass is sometimes needed to see fragments that have given a great deal of trouble.

One must be on his guard against the sensation which is sometimes left after a foreign body has been removed from the eye. It often feels to the sufferer as though this were still in his eye

when it is not. But a most careful search should be made before this is taken to be a self-deception; and even then it would be better to consult a more skilled person.

After removing a foreign body from the eye, the irritation may be sufficient to demand cool, wet applications, or even anodynes. Nothing is better than a thin mucilage of pure, clean gum-arabic poured freely in the eye. Or, a little laudanum may be poured into a heated cup, and when evaporated to a kind of jelly it can be thinned out with clear water and this poured into the eye. A bandage, loosely applied so as to shut out light and keep the eye-ball rather quiet, often does much good.

When lime gets in the eye it burns very severely. At once the eye should be deluged with water, and a little vinegar or lemon juice and water (a teaspoonful of vinegar or lemon juice to a teacup of water) be poured over the eye-ball.

Foreign bodies in the nose. Children sometimes place, or have placed, in their noses small bodies, such as marbles, buttons, peas, beans or small grains. To get rid of them, the nose should be blown hard; or sneezing may be excited by tickling the nose or giving snuff; or the child may be told to take a full breath and then be given a smart blow on the back. Some one of these plans may dislodge the foreign body. If it does not, reasonable efforts may be made to fish it out with a bent hair-pin, a bodkin, the handle of a mustard or salt spoon, or something of that sort. But these efforts must not be rough or prolonged, for they may do much damage; and if a surgeon must be called, the sooner it is done the better. The longer it is delayed, the harder will be his work and the worse for the child. In case peas or beans are lodged in the nose, the danger is increased by the fact that if they absorb any moisture, they swell up and are very difficult to get away.

Foreign bodies in the ear. The removal of foreign bodies from the ear is more difficult than when they are in the nose, because there is no way of getting at them from behind, and there is no natural force to be called to one's assistance. Consequently it usually requires special instruments. Yet, if no medical man be attainable at all, and if it be remembered that the outer passage of the ear is about an inch deep and very delicate, something may be done.

If the body be a metal or mineral one, the ear may be syringed out thoroughly. The person's head must be held up with the face down, as in this position gravity lends some assistance. Very gentle efforts may even be made to remove any foreign body with a crochet needle, or a hair-pin, or an ear spoon, if it can be had. But with all these it must be remembered that great damage may be done by the least roughness.

If live insects get into the ear, oil, glycerine, or salt and water should be poured in. Or a plug of cotton soaked in a strong solution of salt and vinegar may be placed in the ear, the head being turned over on that side.

An ingenious method, which has sometimes been successful, is to turn the ear at once to a bright light, so as to tempt the insect to back out, on account of the attraction which light has for all these creatures.

STRUCTURE OF THE SKIN.

Chief Function of the Skin—Deformities of the Skin—Warts, Moles and Scars, and How to Remove Them.

The skin consists principally of two layers; the inner layer is called the Corium, or Derma, and the outside layer the Cuticle, or Epidermis. Within and beneath the inner layer of the Derma are imbedded several organs with special functions, such as the sebaceous and sudoriparous, or sweat glands, and little follicles for the roots of the hair. The sebaceous glands are abundantly distributed over most parts of the body, being most numerous in parts largely supplied with hair, as the scalp and face; they are entirely absent from the palm of the hand and surface of the feet. The sudoriparous or sweat glands are abundantly distributed over the whole surface of the body, and are especially numerous, as well as large, in the skin of the palm of the hand and sole of the feet. These are the glands from which the peculiar odoriferous matter of the armpit is secreted.

CHIEF FUNCTIONS OF THE SKIN.

The skin is tough and elastic; it readily yields and adapts itself to the various movements and changes of position of the body. The skin is the chief organ of the sense of touch; its whole surface is extremely sensitive. During perspiration there exudes from the skin and passes off by evaporation a large amount of water, an average of two pounds daily; also other organic matter; carbonic acid is also given off by the skin, but in much less quantities than it is by the lungs.

DEFORMITIES OF THE SKIN—WARTS, MOLES AND SCARS.

Any disfigurations, want of proper form or symmetry, irregularities of face or feature, in fact, anything that destroys beauty,

are all a life-long menace to those who possess them, unless they are removed. Perfect form and beauty of feature are desired by every individual, male and female alike, and those not so favored naturally use all proper, and not infrequently improper, means to attain the appearance which others possess and which they so much desire. It is surprising how small a defect will produce a great deformity; a mole upon an otherwise comely face becomes a great disfigurement. It is laudable to use all proper means to look our best.

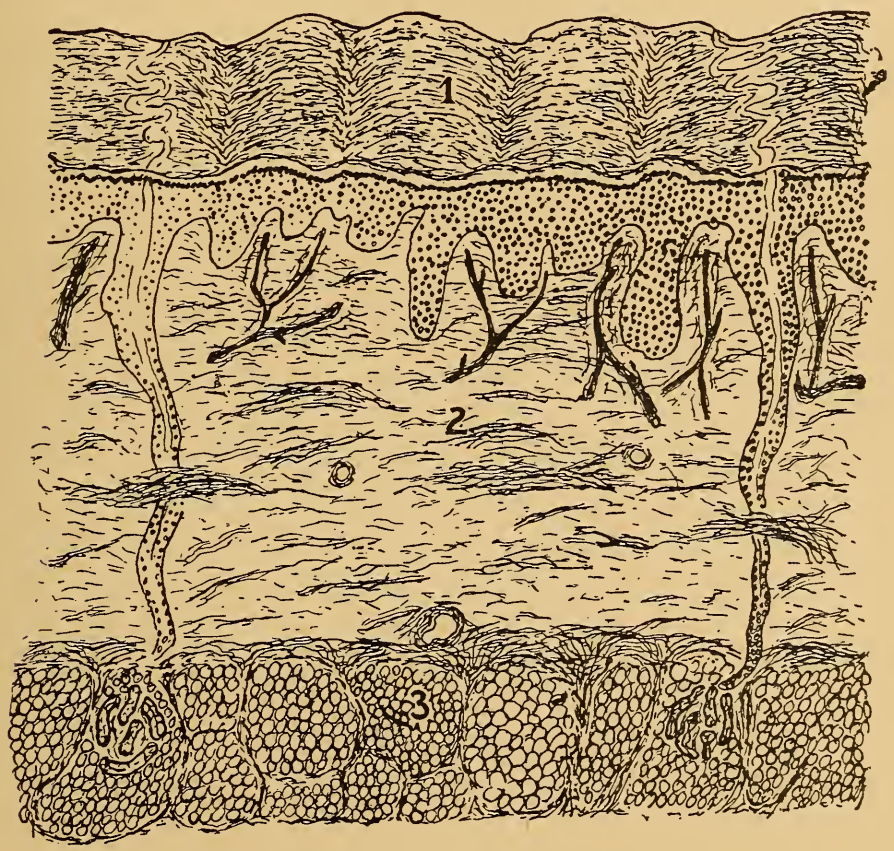

Fig. 10. Showing layers of human skin.

Warts are often found in children; in some there may be only one or two, while in other cases there will be hundreds; they vary in size from a pin-head to that of a silver dollar. They may be round, oval or angular in shape; the surface may be smooth or rough; the color may be that of the normal skin, or vary through the different shades of red, brown and black. When occurring in elderly people, or if they are subject to irritation, they are liable

to become the seat of cancerous growth. The cause of warts is somewhat obscure; they are often found in several members of the same family.

HOW TO REMOVE THEM.

Cosmetic purposes call for their removal when situated upon the face, hands or parts of the body which are exposed, and by the application of proper remedies they can be permanently removed. Electricity has been used with good success, or they can be removed by surgical measures, or by strong acids, which will kill their growth and remove them. In the choice of these measures, one should be guided by the location, size and shape of the warts. If the warts are numerous, small, and situated upon the face, internal treatment should be tried; Iodine, Arsenic and Sulphate of Magnesia have all been used internally and favorable results attained; Epsom Salts is a remedy that I have found of great benefit. It should be given in doses sufficient to relax the bowels two or three times a day for several weeks. For external use as a local application a solution of Bichloride of Mercury, of the strength of one part of Bichloride to five thousand parts of water is efficacious.

The application also of Chromic Acid has been found of great value, but is quite painful, and on this account is often objected to. When electricity is used, and it is probably the best method, and causes the least pain, when it is available, better results will be found to have been obtained, and there is little, if any, scar left.

MOLES.

Congenital deformities of the skin are often met with. Moles are disfiguring in proportion to their size, shape and color. They vary in size from a pin-head to a surface equal to a third or more of the entire body; in color from that of the normal skin through different shades of red and brown to black. Some are flat and smooth, while others are rough, some are smooth, others are hard; some are hairless, while others are covered with a thick growth of strong hairs. Like warts in old people they may become the seat of some malignant growth.

Moles are often found in several members of the same family.

They should be removed not only for the cosmetic effect, but also on account of their taking on a disease growth at some period of the person's life. They can be removed by the knife, caustics, or by electricity, in much the same manner as was above indicated for the removal of warts.

Scars are the result of injuries, accidental or otherwise. The scar resulting from burns and the excision of glands, for instance of the neck when the latter becomes diseased, are liable to lead to serious disfiguration. The scar left by the Surgeon depends upon the skill and care of the operator. Measures that have been used for the removal or improvement of these disfigurements are two, namely, massage and electricity. The patient may be taught to use massage himself, and this can be done by first smearing the scar with sweet-oil or lard, or what is better, equal parts of lanolin and sweet-oil, or the oleate of mercury, five per cent., may be used once a week; these remedies should be rubbed by the patient over the part for about ten minutes every day. This must be persevered in for weeks and perhaps months before the desired result will be attained. The earlier the treatment is begun the better will be the results. For the application of electricity it is necessary to get the instructions from your family physician.

THE BODY'S HEAT AND COVERING.

One of the marvels of the human body is the self-regulating process by which Nature keeps the temperature, in health, at ninety-eight degrees. Whether in India, with the temperature at one hundred and thirty degrees, or in the Arctic regions, where the records show one hundred and twenty degrees below the freezing point, the temperature remains practically steady at ninety-eight degrees despite the extremes to which it is subjected.

Of the total heat given out by the combustion of food man can make one-fifth available in the form of actual work, while science has never constructed a steam engine that could utilize more than one-ninth of the energy of the fuel burnt under the boiler.

The skin is covered with minute scales like those of a fish. A single grain of fine sand would hide one hundred of these tiny scales; yet, small as they are, each is the covering of from three hundred to five hundred pores.

In a square inch of the palm of the hand 3,528 perspiratory pores have been counted. On a basis of a fair average of 2,800 for each square inch of surface, and estimating 2,500 square inches as the surface of the body of a man of ordinary height and bulk, the number of pores is 7,000,000. If joined together they would make a tube twenty-eight miles long.

The perspiration averages from two to three pounds daily evaporation; every breath throws from the lungs a certain quantity of water. Every minute, day and night, the average is preserved of eleven grains of water evaporated by the skin, and from four to seven grains from the lungs.

THE CHILD—ITS NURSING AND CARE.

Death Rate in Infancy—Mortality in Cities—Nursing and Care of Children—Milk of One Cow—Raw or Boiled Milk—Cow's Milk as Compared With Human Milk—Goat's Milk—Substitutes for Mother's Milk—Artificial Foods—How to Feed Children.

DEATH RATE IN INFANCY.

The mortality, due to disease of digestion, which occurs during the first year of life is about forty per cent. and to diseases of the respiratory organs, about twenty per cent. Thus, it will be seen by these statistics, gathered from very reliable sources, that sixty per cent. of deaths during the first year is due to diseases of the stomach, intestines and lungs. During the second year the cause of death changed entirely; it was found that out of forty-five deaths from the two causes, namely diseases of the digestive and respiration, but nine were due to diseases of the digestion, and thirty-six to affections of the respiratory organs.

MORTALITY IN CITIES.

In cities we meet with a high rate of mortality from digestive disorders in children of more than one year of age, and the second summer, therefore, is regarded with a great amount of anxiety. In fact, public opinion looks for a higher rate of mortality in the second than in the first summer. The second summer of a child's life is a period of danger in part only, because of the heat, and mostly because of the ignorance and errors in feeding. Conscientious and intelligent families, in fair circumstances, are not liable to lose their infants in the second summer. Mortality diminishes with every day of advancing life; every additional hour a child lives increases its chance for life. Almost one-half

of the infants who die before the end of the first year do so before they are one month old. The causes of the disease are the more active the earlier they are brought to bear upon the young, with their low vitality.

Two conclusions are to be drawn from the above facts. The first is that a lessening of early mortality depends upon avoidance of diseases of the digestive organs, by necessitating the proper feeding of the infant, and this is particularly important during the first few months of its life. It has been shown that breast milk lowers the rate of infant mortality through the whole of the first year. It is very essential during the first few months. The second conclusion is the following: That the hygienic rules for infants concern digestion, so much so that infant hygiene and the hygiene of the digestive organs in infants appear to be identical.

There is probably no subject of more importance in connection with diseases of child-hood than a thorough and intelligent knowledge of how to care for the infant and child during its first and second years.

NURSING AND CARE OF CHILDREN.

The best nutriment for a new born child is undoubtedly the milk of its own mother. If it is found that she cannot nurse the infant, the milk of a properly selected wet-nurse is next desirable, and if the latter is not available then the milk of a domestic animal must be utilized. Before the wet nurse is engaged, she and her child must submit themselves to an examination of their entire bodies. There should be no abnormalities of the body, and she should be free from all kinds of ulcers and other diseases. The best age for a wet nurse is between twenty and thirty years.

MILK OF ONE COW.

It is desirable that the baby should be fed on the milk of one cow exclusively. The milk of the cow is not necessarily uniform and unchangeable. The constituents of the milk from one cow vary in composition and in taste, the latter being frequently altered by change in feeding. Pasture or dry feeding of the very same cow works a great difference in the milk. In some of the most careful dairies, established for the purpose of supplying infants, those in charge insist upon uniform stable feeding through-

out the whole year. Diseases of the cow influence the milk considerably; tuberculosis of cattle is frequent. If the cow from which the baby gets its nourishment happens to be diseased, and it is overlooked, the results are very much worse than if the child had been receiving milk from several animals, that is, the danger would not be nearly so great by so doing, and this danger is greatly diminished by getting milk from the whole dairy.

RAW OR BOILED MILK.

Boiling the milk removes a small portion of fat and casein which is collected on the surface. This loss is desirable, however, the quantity thus withdrawn is too small. Boiling retards acidulation and it becomes either neutral or alkaline through boiling. It is true that the taste of boiled milk is less pleasant to most people, but its possible dangers are less to all. Milk changes very readily; it takes the odor of smelling substances nearby. It will carry poison, germs, and microbes, and most of these poisons, if not all, are rendered inactive by thorough boiling.

After having boiled the milk intended for the use of the baby during the day, it should be kept in a clean bottle, turned upside-down, and placed in a cool place. In this way milk will keep longer than when preserved in the usual way. Before being used all ought to be heated in a water bath of about the temperature of the blood. By repeated heating of the whole amount of the day's milk several times during the twenty-four hours fermentation will be retarded and the milk be more easily digested.

COW'S MILK AS COMPARED WITH HUMAN MILK.

The milk of each is peculiarly adapted for the purpose for which it was designed. We now know that cow's and human milk differ in the total quantities of nutritious materials and in their relative proportions. Cow's milk contains less total solids, less fat, less sugar and twice as much albumenoids. In cow's milk there is a large proportion of the element of nutrition which creates and supports muscular energy and activity. In human milk there is a larger proportion of sugar and fat. Human milk is uniformly and persistently alkaloid. Cow's milk is more or less acid, and its acidity becomes greater the longer it is kept.

GOAT'S MILK.

It contains more fat, more casein, more salts, more albumen and less sugar than cow's milk. It contains very much more fat, casein, albumen and salts than human milk. These are its drawbacks for exclusive nutriment, being still more serious than cow's milk; besides it has an unpleasant odor. It is seldom taken by infants for any length of time without disagreeing with the stomach, and it is not nearly so well assimilated as cow's milk.

SUBSTITUTES FOR MOTHER'S MILK.

Human knowledge and investigation have been exercised for a long time in their efforts to procure food for infants which is reliable, but the result of all has been that there is no good equivalent for mother's milk. The nearest possible equivalent is good cow's milk. Many children thrive and grow fat on improper food, no immediate harm making its appearance; and still again we find many who, though they increase in weight, lay the foundation gradually for future ailments. For such fatness and rotundity means too frequently rickets, and a constitution too susceptible to other diseases of childhood. However, there are many examples of infants remaining in good condition after being fed on badly selected food. What does this prove? Nothing excepting that the digestive apparatus permits of a certain latitude in some cases, and that it is a wise provision of nature that takes care of the infant in lieu of the intelligence of those caring for it.

The important difference between woman's and cow's milk, as noted above, is that woman's milk curdles in the stomach in small light flakes, while that of the cow coagulates in large compact lumps, as will be noticed by the material vomited frequently. The loose flakes of woman's milk are easily digested and assimilated; the firm lumps of casein and fat of cow's milk are more difficult to digest and the gastric juice in the stomach of the little infant is incapable of handling it. They are usually vomited up again or remain for an indefinite time in the stomach or intestines and cause a sour condition, consequently irritation and a general disturbance of the whole system follows.

When cow's milk is given I have found the following mixture

very useful in preventing the souring of the milk: Carbonate of soda, one drachm, and water, six ounces. A teaspoonful of this is to be added to the milk every time it is taken. When the milk is boiled for the day, I make enough of this solution to be added to the milk, or when the milk is received during the summer for the child's nourishment during the next twenty-four hours, immediately upon its arrival at the house, by adding two or three tablespoonfuls of the soda solution to a pint of milk, and it will prevent fermentation and the milk from becoming sour. Children over three months old drink cow's milk as it comes from the animal, with the simple addition of a small amount of the soda solution. When the infant is very young, from one-half to one-third water should be added. If the parents are sensible they will abstain from giving the child all other kinds of food excepting this milk for the first three months. The milk should be boiled immediately upon its arrival at the house, which prevents curdling.

After four months, if it becomes necessary to give the child additional nourishment, this can be done by soaking a slice of stale bread for fifteen minutes in some cold water. After doing this the bread can then be boiled into a uniform broth with six or eight ounces of alkaline milk to which a little sugar can be added, enough to sweeten.

ARTIFICIAL FOODS.

The number of prepared foods on the market is very numerous, and the selection of one of them, when it becomes an absolute necessity, is very difficult for the mother. A soup made by Prof. Liebig, and which has had a very extensive use, is a mixture of wheat flour, boiled into a thick soup to which, while still hot, malt meal is added. The mixture in a few minutes becomes liquid and acquires a sweetish taste. This is the method of preparing Liebig's soup. The following is the method prescribed by Liebig himself: Half an ounce of wheat flour, one half ounce of malt-meal, seven and one-half grains of bicarbonate of potassa, are weighed off; they are first mixed by themselves, then with the addition of one ounce of water, and lastly with five ounces of milk; the mixture is then heated upon a slow fire and constantly stirred until it begins to get thick, and at this period the vessel is removed from the fire and the mixture is stirred for five minutes, is again

heated, and again removed when it gets thick, and lastly it is heated till it boils. The soup is purified from bran by passing it through a fine sieve (a piece of fine linen), and now is ready for use. Barley-malt can be obtained at any brewery. First it is separated from the impurities, and then ground in an ordinary coffee-mill to a coarse meal. The troublesome weighing of the materials may be dispensed with; a heaping tablespoonful of wheat flour weighs pretty nearly one-half ounce, and a tablespoonful of malt meal, not quite so heaped, likewise weighs one-half ounce, and an ordinary thimble filled with the solution of the bicarbonate of potassa contains nearly fifteen grains. The soup thus prepared tastes tolerably sweet and, when properly diluted with water, is tolerated even by nurslings. This soup, according to my own experience, and that of very many eminent physicians, is the best substitute for mother's milk, and has saved the life of many a child.

Condensed milk has also had an extensive use in the nursery. For a new-born babe I cause one teaspoonful of the milk to be dissolved in twelve of water, and, as the child grows older, the amount of water is gradually diminished, so that at the end of the first year the child gets one of the preparation to six of water. Many children thrive upon this preparation. Recently Nestle's Food has been used extensively; in the cake form this composition consists of wheat flour, yolk of egg and condensed milk. This contains 40 per cent. of sugar, 5 per cent. of fat, 15 per cent. of proteine, and 30 per cent. of dextrine. Nestle's Food renders excellent service to nursing mothers, who have not enough milk to satisfy the increasing demands of the child's appetite.

HOW TO FEED CHILDREN.

The manner in which the nutriments are to be administered to infants is not immaterial. They may be fed, from the very first day of life on, with a small spoon or a cup having a snout, to which they readily habituate themselves; but it is better to use a sucking bottle, because with it the facial muscles are exercised in an equal manner, as in children at the breast of the mother.

The simplest form of sucking glasses is a common bottle of four to five ounces capacity, with a tolerably narrow neck, upon

the mouth of which several finely-cut bits of delicate sponge are secured by a piece of gauze. These sponges should be changed several times daily, and are best preserved in pure cold water. When they are made to reach half an inch over the neck of the bottle, and if the gauze is made properly tense, they will imitate the form and consistence of the nipple.

If these sponges are not good or elegant enough, the bottles may be provided with mouth-pieces of gold, silver, tin or bone. Children drink very readily out of the perforated caoutchouc caps which lately have become so popular, and which are specially recommendable on account of their cleanliness.

A very popular method of feeding infants is by the sugar-teat. It is prepared by mixing pulverized sugar-crackers with milk or water so as to form a dough, which is then put into a linen rag and tied with a string so as to form a ball about the size of a small apple. This soft, sweet ball is put into the mouth of the child, when it cannot be quieted by the ordinary means, at which it instantly begins to suck, and thus may be kept quiet for hours. In general, nothing more can be said against cleanly-kept, often-renewed sugar-teats, than that the cheeks of the child, by the constant sucking, become enormously distended, and form disgusting protuberances when the mouth is closed without them. Usually, however, the contents of the rag, from its contact with the warm mouth, soon begin to ferment, the mucus of the mouth becomes acid, and directly upon that digestive disturbance supervenes, and a fungous growth springs up upon the mucous membrane of the mouth, which only too often leads to a sorrowful end. It is therefore the duty of every physician to prohibit the use of the sugar-teat whenever and wherever possible; but this, in fact, can be more easily advised than accomplished, if we only think of the condition of a poor woman who all day long is plagued by a large number of small children, and at night, when she and the other members of the family absolutely require rest, the crying child will not leave her arm. She will then certainly say: "The physician gives good advice, not to use the sugar-teat; he, however, is not obliged to carry this crying child about all through the night;" thus not one woman out of a hundred will withhold it from her child.

From the lower classes it will hardly ever be possible to eradi-

cate this fermenting ball, and among the better classes the child has a wet-nurse, or at least proper care, and the sugar-teat is renewed often enough, whereby it is generally rendered harmless. So much for the nutrition for the first year of life.

In the second year, the children may be allowed some soft, finely-cut meat. If they have no diarrhea, nor are predisposed to it, they tolerate fresh ripe fruit exceedingly well; on the other hand, boiled green vegetables and husk fruits very generally cause them indigestion. For a child two years of age, for example, I prescribe the following diet: Mornings, between 6 and 7 o'clock in summer, or between 7 and 8 in winter, milk-gruel; between 9 and 10 o'clock, a piece of wheat bread, with a very little butter on it; 12 o'clock, well prepared beef-soup, meat with a little gravy, or potato-broth, or in place of the meat a meal-broth prepared with eggs, but with very little fat, green vegetables very rarely and in very small quantities; afternoon, between 3 and 4, bread and milk, in summer bread with fruit; evening, at 7, beef-soup or milk-broth. Sugar, in general, agrees very badly with children, and it is highly important for their digestion to habituate them to it as little as possible. After the children have passed the third year they tolerate all kinds of vegetables, and may, when otherwise well brought up, very appropriately be allowed to eat at the table with the family; it is only necessary to refuse them very salt, sour, and highly spiced victuals; of all others they may partake in moderate quantities. Children should not be allowed to taste wine till they are fourteen years old, even beer is absolutely unnecessary, as likewise are tea and coffee. Home-made rye bread should be substituted for the ordinary wheat bread. It is well to cause children to eat the entire meal off one plate. They should consume all the soup allowed them before they can obtain anything from the next dish. Aside from the labor saved by not repeatedly changing the plates, children thereby acquire the good qualification of learning to eat everything and not to become lickerish.

DISEASES OF CHILDHOOD.

Diphtheria—Symptoms of—Treatment—Nursing—Tracheotomy—How to Prevent Diphtheria—Use of Anti-Toxine and Results of—Scarlet-Fever—Identical Terms—Causes and Symptoms—Beginning of Eruption, Diet and Treatment, Drinks to be Used, Medical Treatment—Measles—Cause, Symptoms, Complications, Treatment, Care of the Eyes in Measles—Whooping Cough—Symptoms, Complications, How to Recognize, Nature and How it is Spread, Treatment and How to Prevent—Croup—Varieties of—Treatment — Chicken Pox or Varicella — Treatment—Cholera Infantum — Causes — Symptoms — Treatment—Mumps or Parotiditis—Treatment—St. Vitus' Dance or Chorea—Symptoms, Course of Disease, Treatment—Diseases of the Ear in Children—Treatment.

DIPHTHERIA, SCARLET-FEVER, CROUP, WHOOPING COUGH, MEASLES. CHICKEN POX, AND CHOLERA INFANTUM.

Diphtheria is a disease of antiquity. Medical historians trace it back, at least as far as the commencement of the Christian era. Aretaeus, at the close of the first century after Christ, described a malady which occurred chiefly among children and was characterized by a false, white covering over the throat, a foul breath and, in some cases, food taken into the mouth and swallowed, would return through the nostrils, great difficulty of breathing was experienced, often ending in suffocation. Since the commencement of the sixteenth century numerous epidemics have been observed in both Europe and America, and at the present time it is one of the most fatal maladies in both continents; while in many localities, especially in large cities, it is always present. The majority

of cases of this disease occur between the ages of two and ten years, under the age of one year the younger the child the less liability there is to take it, and it rarely ever occurs prior to the fourth month. Cases of diphtheria are infrequent after the middle period of life and old age is almost entirely free from it. The time from exposure to catching the disease is important; I know of one case of a boy nine years of age, who was in the same room about one hour on Saturday with another case, he was taken down with the malignant form of the same disease. In another case two sisters, aged seven and five years, resided with their parents in a boarding-house. A playmate in the same house had symptoms which were supposed to be due to a cold, but which were found to be diphtheretic, when one night the throat disease became worse and ended fatally the next day. The two sisters were immediately removed to a hotel but seven days after the death of the playmate in the boarding-house diphtheria commenced in the seven-year-old child, the younger sister was then removed to a distant part of the same hotel, but on the sixth or seventh day subsequently she also became affected with the fatal form of the same disease. Consequently it is seen that the period between exposure and coming down with the disease varies in different cases, but in the majority it is from two to eight days, but now and then a case may extend even beyond these limits.

SYMPTOMS OF DIPHTHERIA.

This is a disease which affects the whole system, but the condition of the throat is of very great importance, and many mistakes are made even by physicians in not interpreting correctly the character of the exudate which is found in the throat in all cases of diphtheria. It is a very dangerous disease and misleading; no two cases begin in the same way, every case, as far as the symptoms are concerned, seems to be a law unto itself but, in the majority of cases it will begin with a sensation of dryness and tickling in the throat, with perhaps, slight pain when attempts are made to swallow, more or less stiffness along the angle of the jaw; swallowing becomes difficult and painful, there may be swelling of the glands at the angle of the jaw, but occasionally severe cases occur and run their whole course without any external swelling of the glands. However, when the disease commences and when

fully established there will be noticed upon the throat, around the root of the tongue and tonsils whitish patches surrounded by red and inflamed parts. At this period the membrane can be easily removed but will immediately reappear in the same situation.

The nostrils become clogged, great danger occurs when these white patches become general and pass down the throat into the windpipe and larynx and obstruct breathing to such an extent that the helpless patient dies from suffocation.

Cause of diphtheria: It is due to an especial poison connected probably with bad hygiene; this poison is now known to be contained in a small germ and this germ may cling to the walls of a room for an indefinite period. It is fearfully contagious and may be communicated by the breath or membrane, and when one case occurs in a family or community there is great liability of other cases following, even if the strictest rules of prevention are observed. It is more intense during cold weather.

TREATMENT.

Strict isolation should be enforced, as in the contagious fevers. Thorough ventilation should be practiced, and everything coming from the patient should be scrupulously disinfected. Fever diet must be given, the patient being sustained every two hours as in typhoid fever. Free stimulation is usually resorted to, giving alcohol, for its effect on the strength, pulse and mind of the patient. There is great toleration for alcohol in this disease.

Very early in the disease, when the membrane is first forming, the application of strong astringent solutions is resorted to, but after the membrane has formed strong applications are injurious. The throat should be then kept disinfected with potassium permanganate or a solution of salicylic acid (7 per cent) or thymol gr. iv., in glycerine and water. Saturated solutions of pepsin, trypsin or papain are sometimes sprayed into the throat with the view of dissolving the membrane.

Tracheotomy. When all other remedies have failed, and life is fast passing away resort is often made to tracheotomy, and, if properly done and at a proper time, many lives are saved which otherwise would not be. This operation is simply making a small opening in the windpipe to prevent the little patient from dying

from suffocation, as the opening will admit air, and, in quite a large number of cases, life will be sustained until the membrane in the throat has been dissolved enough to allow breathing through the natural channel. A small tube is inserted in the opening in the throat and needs careful attention.

Above all other operations tracheotomy is the one of haste and emergency, done in hospitals often by the resident surgeon, at any hour, and at a moment's notice. It is an operation of considerable difficulty and great danger in some cases, needing the most careful and efficient nursing if it is to be successful.

Let us suppose, then, you are left as night nurse in special charge of a case of diphtheria. The child is in its little cot or tent, the steam kettle is going; you are on the watch. What symptoms will make you call the doctor? The breathing is labored, the voice is harsh, the cough when it comes clanks and clangs with a brassy, bell-like note—all this you know; but if you see the eyes becoming lusterless and the whites reddish, the lips blue, and, above all, if you see at each breath the ribs lifting and the side of the chest tucked in, then see that the physician is sent for. If he decides on operating, your chief and most important duty will be to hold the child and steady the head and neck. Wrap it up in a sheet, so that by pinning the sheet you can restrain its hands and limbs; bare the little neck to the chest, hold the head absolutely straight, watching the cleft of the chin, in the same line exactly with the upper cleft of the breast bone; and to project the neck forward, if you have not a little round pillow to put behind it, make one of a folded sheet or of your own left arm.

Remember, absolute steadiness of your hands and of the patient's neck.

Nursing. The operation being over, the nursing falls to you under three heads:

1. The tube. The silver tube is in, both outer and inner; you have to keep the outer firmly fastened, and yet not too tight to hurt the neck, and you have to take the inner out every few minutes to clean from it the thick mucus and keep the breathing free—a troublesome, tedious task.

2. The room. It must be kept warm and moist. You must watch your thermometer and your fire and keep it perhaps to 70 degrees, moist; your little kettle must be kept going.

3. Nourishment. You will be told what to give, but you have to give it regularly, gently and cleanly.

Duty to yourself. No nurse should think much of beauty or of self-preservation. That is not our business. Still no unnecessary risks should be run, and in tracheotomy for diphtheria it is right to remind you that you run risks of infection if by any chance the membrane or mucus be blown out of the tube with force and thus enter either mouth or eyes. When the tube is being inserted there is generally a great rush of bloody mucus which is most infectious; so keep back your head for it is just the moment when you are apt to put it forward most eagerly; also when cleaning or changing the tube, just keep your face out of the direct line of fire.

Many a good nurse has been off duty for weeks from neglect of such simple precautions.

How to prevent diphtheria. The occurrence of diphtheria in a family necessitates the prompt removal of all other children of the family, either out of the house or to some remote part of the same building, and the proper disinfection of the room and all contents of it, such as handkerchiefs, linen, spittoons and clothing of all kinds. Clothing on all the children when the disease is first noticed should be removed, disinfected and an entire new change of clothing upon all those who are removed from the one who is affected. Too much care cannot be taken in this respect, as "eternal vigilance" in very many cases has prevented the spread of this much dreaded disease.

When diphtheria is prevalent in a community, indispositions on the part of a child, especially when fever is present with some derangement in breathing, especially through the nostrils, should at once arrest attention, although there may be no soreness in the throat at this time, but the latter should be carefully examined, and if even redness is present the throat should be sprayed with some of the following remedies:

Carbolic acid, 32 drops.
Glycerine, 2 oz.
Lime water, 5 oz.

This should be mixed together and should be used with a hand atomizer every two hours through the day. Another preparation

which is also excellent and has been in use extensively in the hospitals of New York city:

Carbolic acid, 32 drops.
Chlorate of potassium, 3 drachms.
Glycerine, 3 oz.
Water, 5 oz.

Both these preparations can be used in the same manner, by opening the mouth of the child and throwing the spray into the throat, or the same can be used by painting the throat with a camel's-hair brush, or they can be used as a gargle, if the patient is old enough and capable of taking a mouthful into the throat, holding it there and gargling.

Another preparation which has been used extensively during the last few years, with excellent results is peroxide of hydrogen. For a child from five to ten years old, this can be used, diluted with one-half of water. This also can be used as a gargle, with the spray atomizer, or with camel's-hair brush, similar to the other remedies, mentioned above.

There are no domestic remedies which can be used safely in this disease. Nursing is very valuable. The strength of the patient must be kept up and there is nothing better to accomplish this end than beef-tea and egg-nog, made properly and given frequently.

THE USE OF ANTITOXIN IN DIPHTHERIA—HOW IT IS PRODUCED—THE RESULT OF ITS USE IN HOSPITALS.

This remedy, as its name implies, is intended to counteract the poison of diphtheria. It is very interesting and instructive to understand in a general way how antitoxins are obtained, and how they are supposed to act when utilized in this disease.

The first step in the production of antitoxin is to obtain the poison of diphtheria from the membrane of the throat, and by means of a sterilized platinum rod to transfer it to what is known as a cultivating medium. In the latter the microbes propagate; this cultivating medium is generally composed of gelatine. After the propagation of the microbes takes place, filtration is practiced, and the genuine poison, or toxin, is obtained, and is then used for the inoculation of animals.

At the present time the horse is the chosen animal for inoculation. The animal is inoculated at stated times until it no longer reacts to the effects of the progressively increasing doses. Then the condition of what is popularly known as immunity is reached; which is simply the impossibility, by the inoculation of these poisons, of making the animal sick.

After the animal is thoroughly immuned (proof from effects of the disease), the watery element of the blood of the animal is then used for a human patient, who, through the introduction of this element into the human system, is guaranteed against the poisonous influences of diphtheria. The horse does not suffer and the results on the human patient have been quite satisfactory, and it has been the means of saving many lives.

This remedy, during the last year or more, has been used extensively in European hospitals as well as American, and the results have been very satisfactory. At Harper Hospital in Detroit, this state, where formerly the mortality ranged from 30 to 40 per cent., with the proper use of antitoxin the mortality was reduced to five per cent.

SCARLET-FEVER.

The terms scarlet-fever, scarlet-rash, and scarlatina are identical, that is, these terms represent the same disease. Scarlet-fever is a very frequent and fatal contagious disase. It may occur at any age, but occurs most frequently in the young. It is frequent in cities, large towns and villages where it spreads by contact. There is probably no disease of childhood which is more treacherous, and which is approached by physicians with more dread than a severe case of scarlet fever. Complications may occur in any form of scarlet-fever, but they are most frequent in severe forms. The most serious complication which affects the nervous system, is convulsions. They may occur at the commencement of the disease, before the appearance of the rash and in these cases many of them recover. But when the convulsions occur after the rash has covered the body, then they are very serious and it has been the experience of many physicians, of wide experience, that cases never recover when convulsions occur after the rash has completely developed. These convulsions are, no doubt, due to the congested condition of the nervous system, and the convulsions

aggravate the congestion. Diphtheria may also complicate scarlet-fever, and it is absolutely necessary to make daily examinations of the throat in order to detect any complication of this character. Another complication to which we may allude is inflammation of the bowels, this may occur before the scarlet-fever or it may occur at the same time. Bronchitis and pneumonia, a frequent complication of measles, do not often complicate scarlet-fever. Another frequent complication is rheumatism; it may occur when the fever is leaving the patient. Attention is called to it by the child complaining of pain or tenderness in the affected joints. If the child is too young to complain, evidence of pain and tenderness will be manifested when the limbs are moved or pressed upon. There is also some swelling and redness in those parts. Complication from rheumatism is not necessarily serious nor does it retard recovery very much, unless some heart complication ensues. Other complications are the following: inflammation of the covering of the bowels (peritonitis), of the covering of the lungs (plueritis) and of the heart (pericarditis) and many such complications of the latter are fatal. One of the most common complications and one which requires close attention from both physician and nurse is inflammation of the kidneys, which is the cause of dropsy. Inflammation of the ear is also a frequent complication; matter will form in the interior of the ear and there will be a foul-smelling discharge, which will require constant treatment and attention.

THE CAUSE OF SCARLET-FEVER.

It is a very contagious disease. By contagion we mean being transferred from the sick to the healthy. When the disease spreads in a family or in a community it must be communicated or carried in some way; it may be conveyed by coming in direct contact or it may be spread through the atmosphere, or by clothing which has been saturated with the poison of scarlet-fever. Animals such as dogs have been known to be around the sick-room where scarlet-fever existed and to convey it to other families; a case is known in which the poison was conveyed in this way. For a number of days a little dog had been around children sick with scarlet-fever and by a single visit of a dog to the children of another family the disease was conveyed. It is a question at the present time whether or not this disease can be transferred in milk.

PERIOD OF EXPOSURE.

The period from exposure until the occurrence of the disease varies from two to ten days, the average is from three to five. It may occur in a few hours after exposure. Age has a marked influence, also individual predisposition. Children are the most susceptible to the influence of the poison between the second and seventh year, and as years increase the susceptibility decreases. When an individual has had one attack he is almost certain never to have another.

SYMPTOMS OF SCARLET-FEVER.

The symptoms vary with the severity of the fever. In moderate cases before the appearance of the eruption the patient will have more or less headache, pain in back and limbs, and, at first, coldness of the surface of the skin. Sometimes there will be bleeding from the nose; in other cases there will be a chilly sensation, and in some, a distinct chill and in children, convulsions frequently occur. These symptoms are immediately followed by a sensation of intense heat with a rapid pulse, often from one hundred and twenty to one hundred and thirty per minute. There will be some nausea and vomiting, very distressing and persistent. The temperature may run high, at the outset from 100 to 104 degrees.

BEGINNING OF THE ERUPTION.

Within a period lasting from twelve to forty-eight hours, the average being thirty-six, the eruption makes its appearance and the fever increases. There is extreme restlessness, often some delirium, and nausea and vomiting becoming severe. The tongue will indicate a strawberry appearance, unlike any other disease, in this respect.

In some cases the disease is so mild that there is but little disturbance except that caused by the eruption, the temperature not running over 104 degrees, Fahrenheit. In other cases the disease is ushered in by violent nervous symptoms, with delirium and sometimes a dull and drowsy, almost unconscious condition, accompanied by extreme exhaustion, and in some cases, the patient dies before the eruption makes its appearance, when the system is

overwhelmed by the poison from scarlet-fever. During the earlier stages both children and adults complain of a prickling sensation in the throat, with some difficulty in swallowing. The throat becomes red and congested, and often somewhat swollen, although there are some cases in which the throat symptoms are entirely absent at the first and do not come on until later in the disease.

In an ordinary case of scarlatina or scarlet-fever, which runs the ordinary course, between the fifth and eighth days of the eruption the temperature begins to decline and at the same time the eruption begins to fade, so that on the eighth day, and sometimes as early as the sixth, it is no longer visible. Then sets in what is known as the period of desquamation, that is, the peeling of the cuticle or outer layer of skin. This period lasts about two weeks, and during this period there is the greatest danger of the spreading of the disease, but at the end of this period, if no complications occur, the patient may be considered practically well.

These fine particles which are thrown off from the skin contain the specific poison of scarlet-fever and they are so fine and so delicate that they may be blown about with every breath and carried with every current of air, so that an average case of scarlet-fever will come to an end at about the fourteenth day, sometimes as early as the tenth day.

TREATMENT OF SCARLET-FEVER.

Strict observance must be enforced in relation to the separation of the healthy from the one affected. Thorough ventilation of the room ought to be practiced and disinfection should be thoroughly carried out. All useless articles of furniture must be removed from the sick-room, fresh air be admitted as much as possible, as it renders the contagion of scarlet-fever less powerful; therefore free ventilation is very important. All clothes and excretions of the patient should be disinfected in the same manner as in typhoid fever. The surface of the body should be frequently sponged and after sponging, the surface should be rubbed with olive oil. These details should be practiced and carried out during the period of desquamation. Those convalescing should not be allowed to leave their room until desquamation is completed, which usually requires from two to three weeks. After the patient leaves the sick-room the apartments should be thoroughly disinfected, and the

windows and doors of the room should be allowed to remain open for a long time.

DIET IN SCARLET-FEVER.

This is a disease accompanied by great physical and mental exhaustion, consequently the proper regulation of the diet, in order to sustain the vitality of the patient, is of the utmost importance. Not only during the whole continuance of the fever but during convalescence. During all fevers the appetite is very much lessened. Milk, soups, broths and various gruels or arrow-root, farina, oatmeal, rice and barley flour are customarily given. It is the opinion of many, based on the fact that in children who are still nursing, complications are of very rare occurrence, that milk as an article of diet in scarlet-fever is of the most potent value. It is wise therefore to subject the patient to an exclusive milk diet during the commencement of the disease. From three to four pints every twenty-four hours will comfortably nourish a child from three to four years of age, and should be given regularly and in measured quantities every two or three hours.

There are some ready methods of altering the taste of milk which may be borne in mind when the child tires of it. Caramel, ginger, a little chocolate, cocoa, or very weak tea added to the milk, will make the diet less monotonous. If difficulty is experienced by the stomach in handling milk, skimming or boiling it will render it more digestible. The flat taste of boiled milk can be removed by the aerating process, pouring it back and forth from one glass to another several times, or by adding any charged water. Dilution with plain water, one part to two or three of milk, renders digestion easier; or lime water, three or four tablespoonfuls or more to the glass of milk; or Vichy, bottled plain soda, or Apollinaris may be added to the milk in any desired proportion. There are also modifications whereby milk may be smuggled in under disguise, such as koumiss, junket, whey and buttermilk.

After the few days of rise of temperature in scarlet fever, the appetite generally returns, and the mistake is common of permitting at this time full diet. It is just at this very period that kidney complications are apt to manifest themselves and that dietetic errors are most costly. Although the fever has subsided, the rash faded, and the sore throat become a thing of the past, the poison is

still in the system and the kidneys are still struggling with its elimination. If the desires of the patient are now allowed full sway, quick revenge may be expected at the hands of the laboring kidneys. Milk should still be the staple article of diet, though rice pudding, milk toast, cream toast, corn starch, wine jelly, farina, oatmeal and cream, mush and milk, crackers and milk, baked apples, stewed prunes, and oranges may be put upon the bill of fare. Stock soups, eggs and meat broths are safer out of the diet until after the fourth week.

Individual cases may demand a strong beef tea or chicken broth, at an earlier period, but as a rule the animal extracts are not permissible until the beginning of the second month. Substances from the meat are dissolved in them which may irritate the kidneys, and do as much harm as the meat itself. With the completion of desquamation, about the twenty-eighth day, soups and vegetables are permitted, and a little later a gradual resumption of animal fare, beginning with fish. Oysters, chickens and eggs should follow in order at two or three days interval before meat in moderation is ventured upon.

DRINKS.

The beverages of scarlet fever are quite varied, alcoholic drinks, coffee and tea being almost the only proscribed fluids. For the thirst during the fever stage, water, seltzer, Apollinaris, barley water, orange juice in Vichy, and soda lemonade may be used freely. A little vanilla ice cream is harmless, and very grateful and cooling to the dry and parched throat. After the subsidence of the fever, it is well to encourage free use of plain water or the alkaline mineral waters throughout the convalescent period, as they seem to aid the kidneys in their work of elimination.

MEDICAL TREATMENT OF SCARLET FEVER.

This is a disease which cannot be aborted, but if left to itself its natural course tends to recovery, if the fever and local symptoms remain within certain bounds. It has certain stages to pass through and one cannot safely interfere with its regular course. To stand by and watch and, so far as possible, to guard against complications are the chief duties of the physician and nurse. All

details are important as herein indicated and should be carried out with religious diligence. As soon as the period of desquamation has been reached the patient should have a warm bath once or twice during the day. The surface of the body should be washed with carbolized soap. The baths hasten the process of desquamation and in bringing about a healthy condition of the skin. They also assist in relieving the congestion of the kidneys.

An excellent preparation to be given when the patient is nervous and the circulation poor and accompanied by drowsiness: carbonate of ammonia, citrate of iron and ammonia, one and one-half drachms; simple syrup four ounces. One teaspoonful is to be given every second or third hour to a child from four to ten years of age. Diuretics should be given in order to increase the eliminating powers of the kidneys. A combination of the following: Acetate of potassium, one-half ounce; tincture of digitalis, one drachm; simple syrup added enough to make a four ounce mixture. A teaspoonful dose of the above should be given four times per day to a child from five to ten years old.

When the temperature is running high, pulse rapid and great restlessness and depression, small doses of quinine, one grain to a child five years of age, every two hours is a good treatment and for a hot, burning condition of the skin, a sponge bath of cool water every few hours as the condition of the patient would seem to indicate.

By intelligent observation the disease, in the majority of instances, can be detected early, and proper precautions may be taken, looking toward isolation and prevention of the spread of this disease; and many lives will be saved and many cases of this disease prevented.

MEASLES.

This is a disease in the majority of instances, peculiar to childhood, but it may occur at any age. Few persons escape it at some period of their life. It is less liable to occur in young infants than in children after dentition, and a second attack is of rare occurrence. It may prevail as an epidemic but it occurs frequently in different localities, the number of cases not being enough to class it as always epidemic.

THE CAUSE OF MEASLES.

It is a contagious disease and, so far as we know at the present time, it is only spread by contagion. The poison of measles is located either in the secretions from the nose and throat, or it is exhaled or given off from the body of the sick one, and so contaminating the air about the sick-room that when persons who have not had the disease are brought into contact the disease is developed. It has been proved that the blood and mucus secretions escape from the nose, and often the tears have the power to spread the disease by inoculation; however, there is little question but that the disease can be conveyed in clothing and that it is a portable disease, capable of being carried around by individuals. The exact nature of the poison of measles is not known.

The average period from the time a person is exposed to the poison of measles until the person is affected is about eight days. Persons are susceptible to this disease the same as to the other contagious diseases. The time in which the poison is most active, that is, most liable to infect the healthy, is not definitely determined, but there is abundant evidence to show that it may be spread throughout its entire course.

THE SYMPTOMS OF MEASLES.

From eight to ten days after exposure the patient begins to suffer from a discharge from the nose, feels tired, languid, chilly and irritable. Occasionally convulsions occur in the beginning among children. There may or may not be fever in the beginning, but very soon after the above symptoms are manifested there will be a marked increase in the temperature of the body. The eyes will be injected and watered; aversion to bright light. The eyelids will be red, more or less swollen; a constant irritating discharge from the nose, with sneezing; pain in the head above the brows. There will be more or less sore throat; voice will be husky; also a hoarse cough. The respiration will be hurried. There will be a sense of uneasiness and lightness across the chest, which will indicate a congestion of the bronchial tubes. After these early symptoms have continued, perhaps for twenty-four hours, the fever will develop. These catarrhal symptoms will

continue from forty-eight hours to four days, then the eruption makes its appearance.

ERUPTION STAGE.

The eruption is first seen upon the face, about the chin, forehead, mouth and side of the nose; then upon the neck; then it passes down upon the chest and over the lower part of the body, including the legs, and lastly upon the back and hands. The eruption upon the face feels like small shot early in the disease. Usually it is about four days from the time of the appearance of the eruption upon the face before it has passed over the entire body, and it begins to fade from that part about thirty-six hours after its appearance on that part, that is, it begins to fade from the face, then the neck and chest, and finally the back and hands. The odor is peculiar during this period. With the appearance of the eruption there is more or less swelling of the surface with itching and burning. The color of the eruption will vary from a bright rose red to a dark mahogany hue. This difference in color depends upon the condition of the individual and the peculiarity of the type of the disease, rather than upon the change in the skin itself. Convulsions may in children be fatal. Blood from the nose is common. An increase of fever and rise of pulse and delirium at night often follow the first outburst of the eruption.

COMPLICATIONS.

One of the most important complications is bronchitis. Rarely is there a case of measles without more or less catarrh of the bronchial tubes, however, this complication is not serious unless the inflammation of the bronchial tubes passes down into the lungs. When it does the patient is in great danger. Pneumonia is also a serious complication. Inflammation of the brain occasionally is a complication. Inflammation of the ear is of frequent occurrence, especially in those who have some hereditary taint in their blood, such as scrofula or tuberculosis.

TREATMENT OF MEASLES.

In all cases of measles without any complications or irregularity in the development of the disease the outcome is nearly always

favorable. The younger the child the danger is less. The chief duty to be performed by those in attendance upon cases of measles is to guard the patient against lung and other complications. The patient should be placed in a large, well-ventilated, darkened room, with a temperature of about sixty-five degrees. The darkened room is necessary on account of the congested condition of the eyelids. The chief article of diet should be milk.

CARE OF THE EYES IN MEASLES.

If the patient complains of itching and burning of the surface of the body, it is well to sponge with warm water. This has a tendency to allay the itching and burning, and also to reduce the temperature. In an ordinary case this is all that will be necessary. Hot drinks or stimulants of any kind have been used extensively upon the supposition that they have power to hasten the appearance of the eruption, but it is doubtful if they are efficacious in that direction, and indeed they have been known to be followed by dangerous results; bringing on convulsions in which death may occur. Indeed, some of the very best authorities state emphatically that in an ordinary case stimulants should never be given during the initiatory period of the fever, unless there is some special indication for their use, such as a feeble pulse and great prostration; then they may be used with benefit. The greatest cleanliness should be observed, besides there should be free ventilation, avoiding all drafts in the sick-room. If there is thirst, cold water may be taken in small quantities at a time. It is the duty of those in attendance to watch closely for the occurrence of lung complications. The chest should be frequently examined. The inhalations of steam have afforded great relief in those cases where bronchitis is severe. The value of vapor inhalations in the treatment of this complication in measles is very great; even when pneumonia has developed the inhalations are of benefit. There is not so much danger from the use of stimulants after the eruption is fully established, and, indeed, when passing off and the fever declining, it is often useful, when given in proper quantities.

There is perhaps nothing better when the little patient is restless, the fever running high and the eruption slow in making its appearance, than a small amount of opium, given in the form of

Dover's Powders; one-half grain may be given for every year the child is old; if the child is five years of age from two to two and one-half grains may be given with safety and with marked benefit. The principal object to be remembered is to prevent complications of any kind, when the disease will run through its course and the child entirely recover, without any results which would have a tendency to deplete the constitution in the future.

If the cough is severe, a mixture of the following is of benefit:

Carbonate of ammonia, 15 grains.
Muriate of ammonia, 15 grains.
Paregoric, 2½ drachms.
Simple syrup, enough to make 2 ounces.
One-half teaspoonful given every two hours to a child from four to ten years of age.

WHOOPING COUGH.

Whooping cough is an acute, contagious disease, attended by a peculiar, characteristic, spasmodic cough. It is a disease of childhood, but cases occur in adults. It attacks an individual but once.

SYMPTOMS.

It has three well recognized stages. The first stage is the stage of catarrhal symptoms, in which there is a catarrhal condition of the nose and throat, similar to that which is seen in a common cold in children. The duration of this stage is from two days to three weeks, the average being ten days. The second stage, or spasmodic stage, is attended by a characteristic, spasmodic cough. This cough is very severe and distressing; the face grows red and then begins a long, clear, piping sound, followed by a series of rapid, convulsive and forcible expiratory puffs, which are succeeded by a prolonged, shrill sound or whoop. If these fits last any length of time the cough becomes inaudible and a considerable quantity of clear, sticky mucus is expectorated or vomited with the contents of the stomach. During the paroxysm the patient grows red or purple in the face. The eyes protrude and the tongue assumes a dark appearance, and the little sufferer seems on the verge of suffocation. Bleeding from the nose, mouth, ears and lungs often occurs during a violent paroxysm of cough-

ing. The face becomes puffy. Ulcers may form on the tongue. The eyelids may become injected. After spasms of coughing a period of exhaustion follows, with soreness of the muscles of the chest. The frequency and duration of the coughing spasms varies greatly in different cases; there may be one hundred in twenty-four hours. They are most frequent at night and, as a rule, the severer the paroxysms of coughing the oftener they occur. The disease usually attains its height by the end of the fourth or fifth week. In mild cases the patient is well in the intervals between the paroxysms of coughing, but in severe cases there may be weakness and debility, loss of appetite, headache, and more or less fever between the paroxysms.

The third stage, or stage of decline. This stage is not ushered in by any well-marked symptoms, but by a great diminution in the severity and frequency of the paroxysms. The peculiar whoop ceases; the cough and expectorations are less difficult; the latter becomes more purulent in character and finally, after a period of about nine weeks, the characteristic cough ceases altogether and the little patient passes into rapid convalesence.

SOME COMPLICATIONS.

During the course of the disease, whenever the coughing fits lose their characteristic features, namely, the whoop, and become dry and hacking, accompanied by great difficulty in breathing, this continuing through the intervals between the coughing, and spasms with a marked rise in temperature, it indicates complications of the lungs. Another complication which is particularly to be feared in this disease is congestion of the brain; when, during a paroxysm, the countenance becomes flushed and swollen, the jugular veins turgid, with a gush of blood from the nose there is danger of such an occurrence. When the face is continually flushed, the head hot, the patient drowsy, or restless in his sleep, moaning and grinding his teeth, there is danger of convulsions and loss of consciousness, in which case the disease often terminates fatally.

HOW TO RECOGNIZE WHOOPING COUGH.

In the earlier stages it is not possible to recognize whooping cough with certainty, but its existence may be suspected if the

cough is of a violent, spasmodic character and if the disease is prevalent in the community. When once the disease is established, the peculiar cough and the watery expectoration distinguish it from other diseases of childhood.

THE NATURE OF WHOOPING COUGH, AND HOW IT IS SPREAD.

The contagiousness of the disease becomes evident when a great number of cases follow from direct contact with persons affected. This has happened so often in this disease that the contagiousness is established beyond doubt. The majority of reputable physicians have expressed themselves emphatically that genuine cases of whooping cough attack children but once, although there are a few who claim to have observed this disease twice in the same person. It rarely, however, attacks adults, and then chiefly among the wealthy who have always been separated from their children and have thus escaped infection. Nevertheless, parents of children with whooping cough and the nursing maid frequently suffer from a milder form of spasmodic coughing which seems to be due to their being with the patient. Infants, before the commencement of dentition, are less susceptible than those several months older; still there are exceptional cases in which it has occurred even before dentition.

It is not possible to state definitely the exact nature of the contagious principle, but it is most probably found in the particles of mucus expectorated, which, becoming dry, are diffused in the surrounding atmosphere and is then in a condition to be inhaled during inspiration.

TREATMENT AND HOW TO PREVENT ITS SPREAD.

How to prevent its spread consists entirely in the removal of the child from the place in which whooping cough is just appearing, but perfect separation in this disease is carried out with difficulty. Whenever possible an entire change of place is desirable. The chief indications in the treatment of whooping cough are: first, to diminish the severity of the paroxysms; second, to prevent and treat, so far as possible, the complications, if any exist; third, to attend to the general health and physical condition of the patient. There are no known means by which this infection can be re-

moved; the paroxysms cannot be altogether prevented, but their severity may be lessened.

Of all the internal remedies used they are of doubtful importance. There is no remedy that will prevent the cough and spasms entirely. Of all the remedies used the best that can be accomplished with any of them is to alleviate the severity of the cough and spasm, and for this the following remedy has been found useful; to a child from four to ten years of age the following prescription may be given in one-half teaspoonful doses, every two hours:

Chloral hydrate, 40 grains.
Elexir valerinate of ammonia, 4 drachms.
Simple syrup, enough to make a two ounce mixture.

The following prescription has been used extensively by the Germans:

Quinine, 4 parts.
Dilute sulphuric acid, 2 parts.
Water, 200 parts.

A small glass syringe is filled with this solution and ejected against the back part of the throat, the mouth being held open and the tongue depressed. Some of this is swallowed or spit out. This may be done every two or three hours during the first three or four days, when marked improvement has followed in many cases. Another favorite remedy, used also by the German physicians, is the following prescription: Muriate of quinine, 3 parts, rubbed with gum acacia, one part. This makes a fine powder, and about three grains, or what you can hold on the point of an ordinary jack-knife, is blown up into the nostrils or snuffed up by the patient, if possible, once or twice in twenty-four hours. This has also been followed by marked improvement in many cases.

The Italian physicians use the following with good results:

Quinine, pure, 3 parts,
Benzoic acid, 1 part.

This is also made into a powder and snuffed up into the nostrils.

Eight cases reported by Italian physicians by this treatment were relieved and cut short very much in their course.

During the third stage, or stage of convalescence, tonics of iron, quinine and cod liver oil are indicated, with a good nourishing diet; plenty of milk in some form, either taken in its natural state, or prepared for digestion after the formula given in the chapter on the preparation of foods. Onion syrup, honey, and many other domestic remedies have been extensively employed, but they act by nauseating the patient and produce vomiting, and have no direct influence over the course of the disease.

KINDS OF CROUP.

There are two kinds of croup; one is a very serious disease which is accompanied by a membrane on the throat, resembling diphtheria. This false membrane may exist in a few patches, spotted here and there and of a whitish color over the wind-pipe and throat. There is often congestion and swelling of the parts also. The other form, which is known as false croup, is an entirely different disease and is the form in which it is met generally among children, and is very much dreaded by the laity. False croup is a simple catarrh of the throat and wind-pipe, is spasmodic, and it is the spasmodic condition of the wind-pipe which gives rise to the croupy symptoms which are more or less familiar to every mother's ears, and if once heard will never be forgotten. In this form the croupy symptoms come on quite suddenly and the attack usually occurs at night. It may not be preceded or accompanied by any fever; there is no complete loss of voice, and there is an absence of any membrane on the throat and tonsils.

There are various causes which are attributed to give rise to this form of croup; among these are irritation of the teeth and stomach, enlargement of the glands of the throat, and an undue excitability of the nervous system, the latter often occurring at the result of hereditary predisposition. The suddenness of the attack is almost characteristic of this disease. The child may go to bed feeling entirely well, and during the night arouse the anxious parents by the croupy cough and difficulty in breathing, so severe is the latter in many cases that life seems in imminent danger.

This is a common disease and ordinarily occurs between the ages of two to five years. Some children in the same family are more liable to croup than others. It is not uncommon in the commencement of measles. Exposure to cold is often the exciting cause. The sleep preceding the attack may be quiet and natural, but when the child awakes there is a loud barking cough and the respirations may be harsh and whistling. The face is flushed and indicates great suffering. The child cries, goes from one position to another, wishes to be held or carried, seeking in vain for relief, the skin is hot and dry, and the pulse hurried. These symptoms continue usually from one-half hour to two or three. They should not last for over a half hour with proper treatment. When the little patient is relieved, exhaustion and sleep follow. The cough, though less frequent, remains for a time of a barking character and the respirations are not natural for some time, but they gradually become so. Often there is no return of the spasmodic symptoms but quite frequently an attack occurs at about the same time the following night. The termination is not always favorable; it is often followed by other serious effects, which may prove fatal; bronchitis often sets in or pneumonia.

TREATMENT.

The first indication to be followed is to relieve the spasms, and to do this a warm bath is indicated, at a temperature of about 100 degrees, or as warm as the child can reasonably and safely be kept in without scalding, and should be kept in it for ten or fifteen minutes in order to obtain its full relaxing effect. In mild cases a warm foot-bath may be sufficient. An emetic should be given at the same time as the bath. To children under three years of age there are many remedies which every household having children should keep on hand. They are simple, inexpensive and not dangerous, and can be employed with great benefit and relief before a physician's services can be secured.

The following remedies are very useful and very effective: a teaspoonful of powdered alum, mixed with honey or syrup. A small amount of this can be given every half hour until vomiting occurs. Another remedy which is equal to, if not better than, the above is the Compound Syrup of Squills, about a teaspoonful

together with a teaspoonful of the Syrup of Ipecac. Generally one dose of the above will be sufficient to produce vomiting, if not another dose can be given, but it is scarcely ever necessary to give more than two or three doses.

A warm bath and some of the above remedies should be given immediately when the croupy symptoms are present, when marked relief will generally follow if there are no complications. I have found also the inhalation of steam from hot water to be very useful. An old tea-pot or tea-kettle in which water can be heated and the steam allowed to escape in close proximity to the child's mouth and nose, and the child encouraged to inhale as much of it as possible. Mustard plasters applied to the throat and upper part of the chest are also very useful.

Another domestic remedy which has proved to be of great value is onions, a poultice of onions placed in a cloth as warm as can be borne and applied to the throat of the little patient.

All that is necessary is to have these remedies at hand and use them promptly and in an intelligent manner.

After the immediate symptoms are relieved there generally follows a cough, which needs some treatment. The Syrup of Ipecac or the Syrup of Squills can be given every three hours, in from ten to twenty drop doses to a child aged five years. A mild laxative should also be given after the spasmodic symptoms have been relieved, and for this purpose there is probably nothing better than the Syrup of Cascara Cordial which is a harmless and very useful remedy, and is very extensively used among children and prescribed generally by the medical profession.

The patient should be kept in a warm room for several days; the atmosphere should be moist. A general tonic should follow and the strength of the patient kept up by good nourishment.

CHICKEN POX OR VARICELLA.

Chicken pox is the mildest of the fevers accompanied by an eruption. It is very contagious, so that few children escape who have been exposed to it. The period from exposure to the breaking out of the disease is from fifteen to seventeen days. It is a disease of child-hood but also occurs in adults. It usually commences with a fever, chill, head-ache, sometimes aching in the back and limbs, and the pulse increases to 100 or 112.

When the above symptoms have continued for about twenty-four hours the eruption appears on the trunk of the body and soon afterwards over the face and limbs. The only other disease with which it is liable to be confounded is small pox.

TREATMENT.

Rest in bed, cleanliness, nourishing diet and warm drinks, and with no complications, nothing further in the line of treatment is indicated. (See P. at end of book.)

CHOLERA INFANTUM.

This is what is commonly understood as the summer diarrhea of children. This is a disease which is to be greatly dreaded, in cities especially, where the mortality is extremely large. Among the principal causes heat may be enumerated. It is most prevalent during the months of July and August, although cases occur from May to October; a residence in an atmosphere loaded with noxious vapors, where gases rise from the decomposition of animal and vegetable matter, or the atmosphere is rendered impure by overcrowding and by personal and domestic uncleanliness. It is therefore more commonly found in tenement houses and parts of the city occupied by the poorer class of people, where there is less attention paid to cleanliness in general, and where it is impossible to secure a proper amount of fresh air. So long as the temperature is moderate the diarrhea will, in all probability, be simple in form, but, should the temperature rise from 85 degrees to 95 degrees Fahr. or even higher, and remain there for several days, as happens occasionally in our summer months, the form of diarrhea will immediately become much more severe and will be very liable to take the inflammatory form.

SOME CAUSES OF CHOLERA INFANTUM.

The next cause of importance is improper diet. Sudden weaning of the child from a natural food to an artificial ought to be avoided during the summer months. Unwholesome milk of any kind or the use of vegetables, unripe or unhealthy fruits, such as apples, currants, gooseberries or blackberries will sometimes

bring on in a very few hours the most violent attacks of Cholera Infantum or change a comparatively mild and safe attack into a more violent and fatal form. Among the causes in cities, where epidemics have existed, the following conditions have been known to exist:

1. Decaying organic matters, bone, hide, fat and offal houses, neglected stables, putrescent mud and filth.
2. Bad drainage, local dampness, malaria.
3. Obstructed sewers, filthy streets, gutters, stables, garbage and cesspools.
4. Water and beverages in any manner contaminated by putrescent organic matter, particularly by any soakage from privies.
5. Neglected privies and putrefying excrement.
6. Overcrowding and neglect of ventilation.

It is just where these conditions are most rife that choleraic diseases in children are most apt to occur. Amongst the poor, who inhabit the crowded quarters of cities, where the streets and alleys are small and narrow, where heaps of decaying vegetable and organic matter abound, where water is scant, or scantily used, where ventilation, from the manner in which the streets are laid out, and from the crowding together of buildings, is necessarily imperfect, we have the most numerous and severest forms of the disease. It is amongst the poor, too, that the food is often of necessity, as well as from ignorance and recklessness, of the most improper kind, and not infrequently insufficient in quantity.

Age, sex, dentition, constitution and hereditary predisposition are all powerful factors in the causation of this disease. Statistics show that there are about twice as many fatal cases among children during the first year than in the second, although dentition is certainly more active and continuous during the second year than in the first; however, cases are rarely observed before the beginning of teething and the disease is certainly very rare after teething is completed.

SYMPTOMS.

Cholera Infantum is known as such when it occurs under five years of age; after this date it is known as Cholera Morbus. The

former sometimes commences abruptly, previous health of child having been good, in other cases there may have been a previous mild diarrhea. The stools become thinner than natural and somewhat more frequent. Suddenly the evacuation becomes more frequent and watery, and the parents are surprised and frightened by the rapid sinking and real danger of the infant. Accompanying this condition is another symptom, namely, irritability of the stomach, vomiting, nausea, and retching without vomiting. The appetite is less and the thirst is intense; cold water is craved for and taken with avidity; and, if the infant nurses, it eagerly seizes the breast in order to relieve the thirst; the tongue is moist, at first clean but it may be covered with a light fur. The temperature is elevated; there is no disease of infancy in which the temperature of the blood rises higher, it may rise as high as 105 degrees, or even higher. The disease may approach a fatal termination in two or three days; the limbs and cheeks become cool, the eyes blurred; pupils contracted; the urine scanty and suppressed. The pulse becomes more feeble and the surface clammy and cold; and stupor results.

TREATMENT.

Preventive treatment. The danger to which teething children are exposed from living in cities during the hot months of the year are now so well understood that most families remove to the country during the warm season and, by so doing, generally avoid the disease. This is undoubtedly the best plan to follow by those raising children in cities, however, when this cannot be done, the preventive treatment consists in the most careful attention to diet, dress, thorough ventilation of the living rooms, and exposure to the open air. If the child is nursing it should be kept at the breast until it has passed through the second summer, as there is little danger from this disease after that period. If, for any cause, weaning must take place prior to that date it ought to be done before the hot weather begins. If the child is weaned the diet must be strictly attended to. Up to the age of ten months or a year, the food should consist almost wholly of milk containing arrow-root, rice, oatmeal or some farinaceous substance in small quantity. A little plain chicken or mutton water, with rice

boiled in it, or a piece of beef or chicken to suck may be given occasionally, but all vegetables and fruit should be strictly forbidden. After the age of ten months, some light soup and small portions of mutton, chicken or very tender beef, minced very fine, may be given every day in addition to the milk food, which must still form the larger part of the child's diet. For further information on how to prepare these different forms of diet, we refer the reader to the article on food in another part of this work.

The dress should be arranged according to the heat of the day. We have not rarely known young children to be kept clothed all summer in thick flannel jackets, and petticoats and woolen socks. This is certainly wrong and too much for the heat which frequently occurs during the months of July and August and part of September, and is, we believe, very injurious. A light gauze flannel shirt is the only woolen garment that need be worn during the warm season. On hot days, a child should have only this, a muslin petticoat and frock and the lightest possible stockings, or none at all. If, as constantly happens in our climate, a cool day comes, there should be added a light flannel petticoat.

It is important that the child should pass a large part of the day in the open air. We believe that, with a constant and wise attention to these points, namely, diet, dress, careful ventilation of house and bed room, exposure to the air, and exercise, much may be done towards preventing this disease, even if families are obliged to remain in the city during the summer.

After the disease is once established something can be done by way of reducing the number of discharges, and also toward making the little patient more comfortable. The following prescription has had an extensive use among the leading physicians of New York city:

Tincture of opium, 15 drops.
Aromatic spirits of ammonia, ½ drachm to 1 drachm.
Subnitrate of bismuth, 2 drachms.
Chalk mixture, 1½ ounces.
Simple syrup, ½ ounce.

An infant six months old should take about twenty drops every two hours; and for a child one year old one-half a teaspoonful.

When the skin is hot and the fever high, frequent sponging of the surface of the body with tepid water and alcohol has been found very grateful.

Lime water and milk may also be given in the following amounts: Take two parts of milk with one of lime water, and add fifty per cent. water which has previously been boiled. A teaspoonful or two of this can be given every hour, when the little patient craves for something to drink.

When the patient begins to improve, and when there is danger of taking food which will prolong the disease or cause a relapse, I have found the following very useful: equal parts of milk, cream, lime water and plain water can be given with comparative safety. Medicines, as a rule in this disease, have not yielded the best results; there is more to be accomplished by nursing, and proper diet, but this must be done intelligently, and the food be properly prepared and given in proper amounts. If this is not done, all remedies directed toward the relief of this disease will do very little good. (See prescription for same.)

MUMPS OR PAROTIDITIS.

In the human being there are located two glands, in front of and towards the lower side of the ear, one on each side of the head, glands known as the parotids. Connected with this gland on the inside of the mouth and opening upon the molar teeth on each side, is a little tube about the size of a goose quill. During the mastication of our food, when it is being rolled around under the teeth, this gland gives out a fluid, which is carried and poured out on the food while under the teeth, by this little tube, which reaches up to the gland on either side. This is what is known as the saliva, or what is more commonly understood among the laity as the spittle. It performs a very important function in digestion by lubricating the different varieties of food and assisting in the first process of digestion.

It is this parotid gland which becomes diseased when an individual has the mumps. This gland becomes tender and enlarged, the swelling gradually increases until the depression under the ear is filled, and the swelling may extend upwards and forwards upon the cheek, or downwards to a greater or less extent upon the

neck. This inflamed or swollen condition of the gland is said to be due to a specific poison in the blood.

The swelling reaches its full extent on from the third to the sixth day. The most prominent point in the swelling is generally underneath the ear. Movements of the jaw during mastication, and even talking, causes considerable pain. Fever is also present, but ordinarily does not last more than forty-eight hours. The swelling, when it has reached its full extent, remains so for a short time, when it begins to decline, and by the sixth or tenth day it has entirely disappeared. The total duration of the disease is usually from eight to ten days; in mild cases it may not be more than five.

The swelling of the glands sometimes abates suddenly; and in the male the testicles may become involved; while in the female the mammary glands or ovaries become affected. Young children or old people do not often take the mumps.

Mumps are contagious, and the period from exposure until the person comes down with the disease is about twelve days.

TREATMENT OF MUMPS.

It is very simple. Anything soothing applied over the swelling will give relief. Mild laxatives, and warm drinks, such as lemonade, should be given, while the patient should be kept warm. A poultice of hot hops is also an excellent remedy. A mild diet, such as poached eggs and milk with a little beef soup, according to the formula given before, is all that is necessary. (Prescription for mumps will be found under above title.)

ST. VITUS'S DANCE OR CHOREA.

This is a disease of the nervous system marked by muscular twitchings. It is most frequently met with between the ages of six and sixteen. It is liable to follow any child whose parents have suffered from hysteria, epilepsy or other forms of nervous diseases. From two-thirds to three-fourths of all cases of St. Vitus's Dance occur in young girls. Feebleness of constitution, and the injurious system of forcing the education of children predisposes to chorea. The most common predisposing cause is undoubtedly anemic condition of the system. There is generally

an enfeebled condition present, with a deficiency in the richness of the blood. In many children with an hereditary tendency to nervousness a very slight cause will often bring on an attack. A not infrequent cause is fright, and a sudden excitation of the nervous system.

SYMPTOMS.

The muscular twitchings may be confined to one arm, or side of face or neck, or of one eye, or it may be general, when all the limbs and muscles of the face and body are involved. Statistics show that the left more than the right side is involved.

COURSE OF THE DISEASE.

Although the disease is obstinate, and even often incurable in adults, it usually terminates favorably in children in three or four months. Very often the first indication of the disease will be a restlessness; sometimes there will be a twitching of the fingers, and involuntary movements in walking, one will stumble, and they will often find great difficulty in putting food in the mouth. In a mild case in a child the patient will seem awkward; will break dishes involuntarily; the speech may become affected; and pain will be complained of on the affected side.

TREATMENT.

In all cases close observation and thorough examination should be made in order to discover the cause. Investigation should be made as to whether intestinal worms are present, or constipation, if either is found they should be properly treated and removed. In all cases mental and bodily rest must be insisted upon. A generous and hearty diet, and pleasant surroundings should be obtained; when patient lives in the city, if possible, a change of air and surroundings to the country is advisable. Children with St. Vitus's Dance should not go to school.

There is one drug that has given better results than probably any other in the treatment of this disease, namely, arsenic, in Fowler's Solution. Begin with three drops in water after eating, increasing one drop every day until eight drops is reached, and then one drop less every day should be given until three drops is

reached as in the beginning, when the upward course may be again followed. This is the treatment for a child from five to ten years of age, either sex.

Electricity and friction should also be employed. A very useful remedy which can be applied at home is salt and water, a cupful of salt to one-half gallon of water, and the surface of the body rubbed with a crash towel once a day, preferably at night. This will stimulate the nervous system and assist in the circulation of the blood, also aid in digestion. For a course of electricity it will be necessary to consult your physician, and have it properly applied.

With the above remedies, and the carrying out of those indications, in the majority of cases, your patient will recover and be entirely well.

DISEASES OF THE EAR IN CHILDREN.

It was the experience of those in charge of the Manhattan Eye and Ear Hospital, New York, that out of three hundred and eighty-three cases of diseases of the ear in children under fourteen years of age, which had come under their observation, three hundred and forty-six, or all but thirty-seven of them, the diseases were located in the middle ear. The diagnosis of this disease can almost be made by the character of the discharge. If the latter is foul-smelling and purulent in character, this evidence is sufficient to locate the disease in the middle ear. In all these cases the drum-membrane is ruptured and there is inflammation of the surrounding covering of bone, and also of the tube known as the Eustachian Tube, which leads from the ear to the throat.

TREATMENT.

The treatment should first consist in cleansing the ear, and there is nothing better than a hot douche containing a few drops of peroxide of hydrogen. After the ear is thoroughly cleansed, a powder composed of pulverized borax, one-half drachm, and iodoform, five grains, should be used; the powder should be thoroughly mixed together and blown in the ear, or a small piece of cotton batting may be saturated with the above remedy, placed in the ear, and allowed to remain for a short time. If the

discharge is abundant the hot douche should be used three or four times during the day, and the powder used after each cleansing treatment.

Very often the disease will continue for a long time, especially is this the case if the infant is scrofulous, or has any other blood disease. The system must be built up by proper tonics. The tincture of iron, five drops, three times a day after eating, for a child from five to ten years old, is good treatment; or the syrup of hypophosphites, one-half teaspoonful in water or milk, also three times a day after eating. When the weather is mild and agreeable, out-door exercise should be prescribed, as the sun-light and air assists in the assimilation and absorption of food.

TEETHING—TREATMENT OF.

Worms in the Alimentary Canal.

There is probably no subject of more importance, or of which it is more advantageous to the mother to have some knowledge than that of teething. During the course of life the human being is provided with two sets of teeth; the first is called the temporary or milk teeth, and makes its appearance in infancy, and, in the course of a few years, are shed and replaced by the second or permanent teeth.

The temporary or milk teeth are ten in number in each jaw; on either side from the middle line there are what is known as two incisors, one canine and two molars.

The number of permanent teeth in each jaw is sixteen: six molars, two canines, four incisors, and four bicuspids.

The time the first or temporary teeth make their appearance is varied; some children may cut their first teeth before the age of six months, and others not until nearly the twelfth month, and some have been known to have teeth when born. In nearly all cases the two central incisors of the lower jaw are cut first, these being followed shortly afterwards by the four incisors of the upper jaw; the others follow and the first dentition is completed at about the age of two years. These milk teeth are in use from the age of two up to five and a half years; at about this age the first permanent molars or back teeth, four in number, begin to make their appearance.

It was formerly the opinion of many of the medical profession (and at the present time entertained by the laity), that many diseases of childhood were directly or indirectly caused by teething. The teeth developing and coming through the gums is commonly attended by more or less congestion and swelling; this is often greater with some teeth than with others, thus, the incisors of the upper jaw cause more swelling than those of the lower.

Some children, previous to the eruption of the teeth, are affected with diarrhea, and quite frequently there is an irritable condition of the stomach. There are other more serious conditions which have been traced to dentition; convulsions, commonly known as fits, occur. In these cases a careful examination of the gum generally discloses a swollen, congested condition surrounding the teeth which are forcing their way to the surface.

Convulsions are more liable to happen when several teeth penetrate the gum at about the same time. Some medical writers are of the opinion that inflammation of the brain results from teething, although the facts have not been forth-coming and it is not generally believed at the present time.

TREATMENT OF TEETHING.

This will depend upon the actual conditions which exist in each and every case. If there is diarrhea, of course, this should be treated with proper remedies; if there are nervous conditions such as convulsions, these require soothing remedies. The gums should be examined carefully and if found swollen and tender, soothing remedies are sometimes useful. The infant should be allowed to hold in the mouth an india rubber or ivory ring which, by pressure on the gums, often gives great relief. Mothers will often attempt to "rub through the teeth," as they term it, by means of a ring or finger; this should not be done; friction of this kind will have an injurious effect by increasing the swelling and inflammation, unless the teeth are just about through the membrane.

There is a considerable difference of opinion in relation to the necessity of lancing the gums; it is not now employed so frequently as formerly. It is thought wise now by eminent specialists in the diseases of children not to be in a hurry in using the lance. If the infant seems to be in immediate danger, as in convulsions, and is not relieved by the ordinary means, lancing the gums is not only required but is an absolute necessity. Unless the tooth is very near the surface lancing will not give even temporary relief, from the fact, borne out by experience, that the congested gum will again become united and it will be more difficult for the tooth to protrude.

For a child in convulsions there is probably nothing better than the following:

Bromide of potassium, 1 drachm.
Tincture of valerian, 4 drachms.
Water enough to make 2 ounces.

A teaspoonful of this to a child two years of age should be given every two hours; the child must be immediately plunged into a warm bath, in which is placed a little mustard, and more or less friction made along the spine; and the child should remain in the bath until the convulsion is over. The bromide of potassium is an excellent remedy to give during the period of teething for the nervous condition which frequently exists; it should be given in about three grain doses, four times a day, in a little syrup, for a child two years of age.

WORMS IN THE ALIMENTARY CANAL.

There are four different species of worms found in the alimentary canal: viz., the round, tape, thread and pin. The round worm is in shape not unlike the common earth worm, and varies in length generally between six and twelve inches and is usually about the thickness of a common penholder; the color of the worm is whitish or yellowish; the male may be known by its tail which is slightly curved while that of the female is shorter and thicker. The thread or seat worm is the smallest of the intestinal worms, and looks not unlike a piece of cotton thread, from whence its name was derived. There is one other variety of thread worm which is longer, generally about an inch and a half to two inches long; they are found generally midway between the stomach and the rectum in the intestinal canal. Tapeworms are rarely found in children; out of two hundred and six cases observed only twenty-two occurred in subjects under fifteen years of age. The common tapeworm is from seven to thirty feet long; it has a head, neck and made up in segments. They are almost exclusively found in the upper part of the intestinal canal.

The frequency of intestinal worms and their importance as the

cause of disease have certainly been, and are still by many physicians, and especially by the public, very greatly exaggerated. There can be no doubt that, when they exist in large quantities, and particularly in certain countries, they give rise to great disturbances of the digestive system, and even occasion death. But such instances are extremely rare in my experience. When we consider how universally worms are found in all young animals, and how frequently they exist in the human body without producing disease of any kind, it is but to conclude that they serve some useful purpose in the animal economy.

Worms develop in the intestines of the human being by the entrance of the egg, which develops into the different varieties of the intestinal parasite. Their entrance into the intestinal tract is only effected through food and drink. Butchers and those who handle raw meat are more subject to them than others; filth and personal squalor are factors which favor their development.

The seat worm when present in small numbers occasions few symptoms; when they are numerous there is intense itching around the anus, especially on retiring, when the increased warmth causes them to be very active, and by this the sleep is more or less disturbed. They often cause a frequent desire to go to stool, and sometimes there is an abnormal amount of mucus mixed with the faeces.

The prevention of the formation of worms demands that all raw or underdone meat should be avoided; measly pork should not be allowed to be sold in the markets, and wells and springs from which water may be obtained should be removed from the neighborhood of stock-yards.

The means used for the expulsion of the tapeworm have for their object the dislodgment of its head; so long as this remains it is useless to hope for a cessation of the symptoms. The diet should be restricted for two or three days before the administration of medicines. Several remedies have been used with more or less success; there is probably nothing better than male fern; it is one of the oldest and best known remedies; the extract of the oil is given in capsules, those of one-half drachm each should be followed by a dose of castor oil, or oil of turpentine in one-half or one ounce doses has also been used with very good effect. An

emulsion of pumpkin seeds frequently acts very efficiently, also the active principle of pomegranate root bark.

The following prescription is a very valuable one, and is used extensively by many French physicians:

Sulphate of pelletierine, 1 ounce.
Tannin, 15.23 grains.
Sweetened water, 5 drachms.

This may be used in all cases except (1) in individuals of great nervous irritability, (2) in pregnancy, (3) in very young children. In order to combat the muscular paresis of the intestines due to the action of the pelletierine, a half hour or an hour previously there is frequently given an infusion of two and a half to four drachms of senna leaves, sweetened with an ounce of syrup of bitter orange-peel. The pelletierine prescription should be mixed with an equal bulk of water. The patient takes at first half, the other half in from ten to thirty minutes, at once, or in separate doses. To prevent vomiting he should remain lying down. The purgatives should be given half an hour after the last of the pelletierine. This may consist of German brandy and thirty to fifty grammes (gr. 462.97 to gr. 771.62) of castor oil in capsules or emulsion. Evacuations should be made in a vessel half filled with water.

Treatment for round worms is chiefly santonin; a convenient form for administration is the troche, or it may be prescribed in powder with calomel. The following is the most successful plan of dislodging these parasites:

Santonin, five grains; calomel, five grains, for an adult; one-half the amount for a child. When giving this, it should be preceded by a laxative in the morning, fasting during the day, and the santonin and calomel given at bed-time, followed in the morning by a draught of senna. Troches of santonin are made as follows: santonin, one-half ounce; with sugar tragacanth, orange-flower water, to form four hundred and eighty troches. Each drop contains one-half grain of santonin.

Treatment for pin, or seat worm: For a child four years old an injection of lime water has been found very successful; it may be given with equal quantities of warm milk or flaxseed tea, or

the following is also useful: one teaspoonful of turpentine to one glassful of milk; also the following: carbolic acid, ten drops; water, one glassful. Enemata of oak bark, alum and salt water has also been found very useful. It is necessary to keep the parts scrupulously clean.

There are other varieties of intestinal worms, but the four mentioned, tape, round, pin and thread, are the most common, and the above remedies will be found very useful and successful in dislodging them.

ACCIDENTS AND EMERGENCIES.

What to do in Cases of Accidents and Emergencies—What to do in Case of Drowning—How to Produce Artificial Respiration.

Some General Considerations—What to do and what not to do in Cases of Accidents and Emergencies.

"A little knowledge is a dangerous thing," said an eminent author. The danger depends largely upon the possession of this knowledge, and how and where the application is made.

There is no condition of which we can conceive wherein a little knowledge will be of more utility than in the presence of accidents and emergencies.

How valuable are the services of the man or woman who happens to be present at an accident or injury, who possesses a cool head, a strong hand and knowledge enough to know what is the best thing to do under the circumstances. Such a one must acquire the necessary knowledge before the emergency arises. With this end in view we will endeavor, in this and succeeding articles, to give simple and practicable illustrations of what should be done in certain accidents.

Such knowledge is not to take the place of sending for a physician or surgeon. There are very many cases of injury that require immediate attention. From the inception of any injury until skilled assistance is secured, in the majority of cases, is very valuable time; time which, if properly utilized by those who may chance to be present, may save the life, or at least relieve the unfortunate sufferer.

Some individual, who possesses the coolness, courage and information should immediately assume command and bring order out of chaos. Such an one will rarely fail to be recognized by the timorous and less efficient, and will usually find very little difficulty in

directing them so they will render some valuable assistance, or at least do no harm to the sufferer.

In this city, Detroit, there are four or five partially eleemosynary hospitals with ambulances attached, ready to respond day or night, at a moment's notice, to calls in any part of the city. Between two and three thousand calls are responded to annually—the larger part being serious accidents, requiring immediate assistance.

A case: A man walking along the street suddenly falls over; it may be from intoxication, an apoplectic fit, an epileptic fit, heart disease, or, if the weather is hot, may have received a sun-stroke. A crowd gathers, general consternation and great excitement prevails. No one is present competent to render proper assistance to the sufferer. As happened a short time ago, two boys were playing with open pocket knives, when one accidentally struck the shaft blade of the knife into the large artery of the other's leg, severing it. Before proper assistance could be secured, the loss of blood was so great that death followed.

Another case was that of a man in an intoxicated condition, who was accidentally run over by a street car, breaking both legs. The shock and loss of blood were so great that he soon became unconscious. Anxious and sympathetic, but ill-advised bystanders, eager to do something toward assisting the poor, unfortunate fellow, secured an additional amount of whisky and poured it down his throat, blindly thinking to restore him, while the blood was still pouring from the lacerated limbs. He was beyond recovery when the proper help was secured.

Any screaming or wailing should be stopped, if possible. Then, no more persons than are needed should be called to assist in removing the one in danger; or, if he be crushed, to assist in removing whatever rests upon the injured part. Next, his body should be placed in a comfortable position—lying down, with the head a very little raised—after which an investigation may be made to find out, as nearly as possible, the nature of the injury, and a line of subsequent action immediately decided upon.

Just as soon as these preliminaries are carried out, or before if possible, some one should be dispatched for the doctor, or the ambulance, or both, as the severity of the case demands, and certainly with proper instructions as to the nature of the injury, in

order that the physician or ambulance surgeon may have an idea of what he may expect to find upon his arrival, so that he can bring along the necessary instruments and remedies immediately needed for the proper treatment of the injured.

While awaiting the arrival of the ambulance or of the doctor, whatever may be advisable may be done by those at hand according to the nature of the injury and the severity of the case. Clothing may have to be loosened or perhaps removed. If the case be one of fainting or swooning away, efforts which assist in resuscitation should at once be practiced. If it is a case of drowning efforts should be at once directed toward bringing the unfortunate one to a normal condition, including artificial respiration. If the injury is a broken leg, temporary splints with bandage may be provided. If there is a hemorrhage or bleeding, means should be used to control it, as a few minutes of inaction when a large artery is severed would likely jeopardize the life of the person.

In some cases it is very important to know what ought not to be done. Large quantities of strong stimulants, whisky or brandy, should not be given. If the case be one that seems to need stimulants, the non-medical bystanders had better stick to water, hot or cold, tea, coffee, milk, or the inhalation of spirits of camphor, or ammonia, if the individual can breathe. Alcoholic stimulants, as a rule, except in very small quantities, are not only unnecessary, but positively harmful. They often injure the patient, mislead the doctor and interfere with the proper treatment of the case. Exceptions may be discovered to these general statements, but the above is the rule and not the exception.

Do not do too much. That would make a bad matter worse—making bad use of instructions intended to bridge over an interval between the occurrence of an accident and the coming of one whose whole time is given to healing. The true principle is, when the urgency is pressing, to do what is known to be helpful, and when one is not sure do nothing. Every physician or surgeon of experience can recall instances where a little knowledge of simple remedies properly applied, would have been of incalculable benefit, and others where positive injury was done by meddlesome, venturesome and ill-informed persons.

DROWNING.

Obstructions to Respiration—How to Revive the Drowning.

How long a person may be under the water and yet recover is an important question, and one upon which there is a diversity of opinion, the answer depending upon many considerations. The immediate cause of death when a person dies from drowning alone is the filling of the air passages with water and shutting out the air so necessary to existence.

Those who are suddenly precipitated into the water, had they the presence of mind, or the requisite knowledge, to take one or several full breaths at every available opportunity, and retain the air as long as possible, thereby decreasing their specific gravity and causing their bodies to float more readily, would often live until assistance could reach them. The lungs are capable of receiving a large quantity of water, and it is this water that causes death by drowning. It is retained in the lungs and by its presence prevents the passing in of air, and finally the circulation of blood and the action of the heart stop.

WHAT TO DO IN CASE OF DROWNING.

It may seem almost absurd to say that the first thing to be done when one has been exposed to drowning is to remove the person from the water, yet I well remember having seen some years ago, the spectacle of a woman's body, held by a rope, floating in the river, and gazed at by hundreds of curious people. Upon inquiry, a policeman gravely informed me that no one dared to take it out until the arrival of the coroner. This is a mistake. Any one who thinks there is a chance of resuscitation should remove from the water a person presumed to have been drowned, and at once set about the work.

If natural breathing has ceased the first thing to be done is to free the body from any clothing which binds the neck, chest or waist and turn it upon the face for a moment, thrusting the finger into the mouth and sweeping it around to bring away anything that may have gotten in or accumulated there. The body should be then laid flat on the back, with something a few inches in height

under the shoulders—anything will do; a folded blanket, a shawl, coat, or stick of wood—so as to cause the neck to be stretched out and the chin to be carried far from the chest. The tongue should now be drawn well forward out of the mouth and held by the assistant, or, if there be no one to do this, a pencil or a small stick may be thrust across the mouth on top of the tongue and back of the last teeth, to keep the mouth open and tongue out of the throat. A very good way to get the base of the tongue clear of the windpipe is to press the angles of the jaw forward with both thumbs applied just in front of the lobes of the ears.

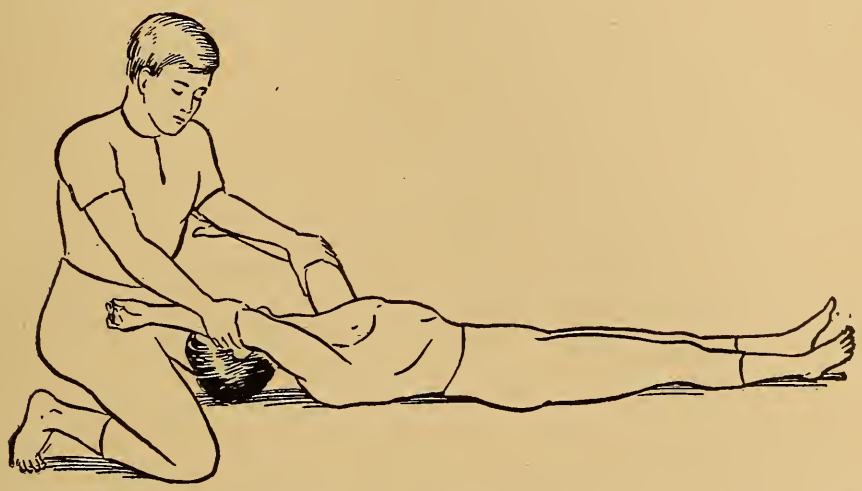

Fig. 11. No. 1, Showing position and movements of the body in accidental drowning.

An effort to secure artificial respiration should now be begun. The simplest way to do this is for some one to place himself on his knees behind the head, seize both arms near the elbows and sweep them around horizontally, away from the body and over the head till they meet above it, when a good, strong pull must be made upon them and kept up for a few seconds. This effects an inspiration—fills the lungs with air, by drawing the ribs up and so enlarging the cavity of the chest.

The second maneuver consists in returning the arms to their former position alongside of the chest, and making strong pressure against the lower ribs, so as to drive the air out of the chest and effect an act of expiration. This need occupy but a second of time. If this plan is completely carried it will make about sixteen complete acts of respiration a minute.

These movements, alternating as stated above, should be kept up

for a long time and not abandoned until a competent person has ascertained that the heart has ceased to beat.

The cessation of pulse at wrist amounts to nothing as a sign of death, and often life is present when only a most acute and practiced ear can detect the sound of the heart. In a moderately thin person, deep pressure with the finger ends just below the lower end of the breast bone may sometimes reveal pulsation in the main artery of the body, situated there, when it cannot be found elsewhere.

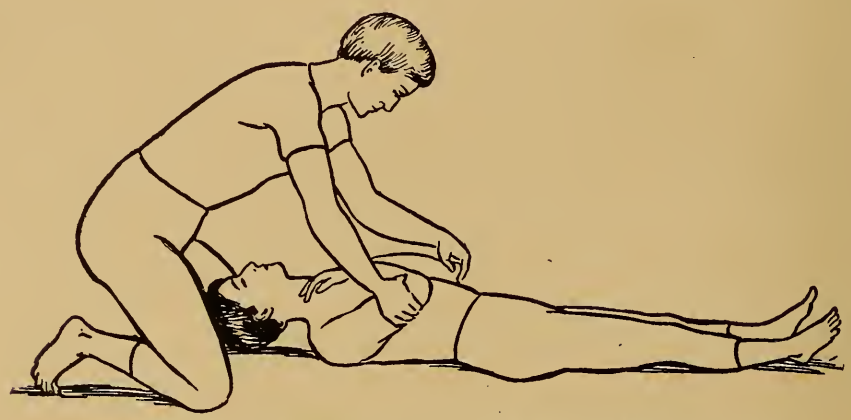

Fig. 12. No. 2, Showing second movements in accidental drowning.

It is important that the wet clothing as soon as possible shall be removed from a drowned person. This can always be done without interrupting the artificial respiration. The wet clothes may be loosened and drawn down over the feet. Then the body may be slipped quickly on to something dry and covered with some dry fabric. Bodily heat must be restored and maintained by artificial heat and means which ingenuity under the circumstances may suggest—hot bottles, plates, bricks, stones or even boards that have lain in the summer's sun. At the sea-shore there is plenty of hot sand. The body and limbs may be gently but constantly rubbed toward the heart, to help the blood in its labored circulation. None of these things need interfere with the efforts to secure respiration, which must be uninterrupted.

Some stimulant is to be given as soon as it can be swallowed; teaspoonful doses of brandy or whisky in a tablespoonful of hot water may be given every few minutes till the danger point is passed.

When natural respiration begins to be noticed it should be aided as much as possible by timing the artificial to it. It may also be stimulated by the application of smelling salts, hartshorn, spirits of camphor, snuff or even tobacco to the nose, by slapping the skin, or by dashing hot water upon the chest. When it is available there is no better stimulant to respiration than that of a good Faradic battery, used so as to cause a reflex sobbing or deep breathing by the pain it causes. Little by little natural breathing will take the place of the artificial, but close attention is required for some time. Nothing but danger from cold or pressing necessity should prompt the removal from one place to another of a person who is being resuscitated before this has been thoroughly accomplished. If removal cannot be avoided it must be effected with great care. After resuscitation the person should be put in a warm bed, and carefully watched to see that breathing does not suddenly stop.

POISONS.

Unknown Poisons—Acid Poisons—Alkaline Poisons—Metallic Poisons—Vegetable Poisons—Résumé.

Immediately upon the discovery or suspicion of poisoning, some one should be dispatched for a doctor, if possible, carrying information as to the poison taken, so that valuable time may be saved. Meanwhile the following may be done:

1. Unknown poisons. If the patient should vomit, this may be encouraged; if not, it must be provoked. The simplest way to do this is to give large draughts of lukewarm water, and thrust a finger down the throat. If there be time, and it is at hand, a teaspoonful or two of ground mustard may be stirred up in the water, or a teaspoonful of powdered ipecac, or a tablespoonful of the syrup of ipecac. Further, let it be remembered that there is no occasion for fastidiousness. Any water will do. Water in which hands—or dishes, for that matter—have been washed, may by its very repulsiveness, act more quickly than anything else; and if soap has been used, it will be all the better for that, as soap is an antidote for acid poisons. The quantity used must be large; the sufferer must be urged to drink and drink, a large quantity at a time, until he can contain no more, and has been made to vomit over and over again.

After copious vomiting, soothing liquids should be given—oil, milk, beaten-up raw eggs—all in moderately large quantities. These are especially valuable when the poison has been of an irritating character.

If the sufferer be much depressed in body or in mind, the hands and feet cold, the lips blue, the face pale, a cold perspiration upon the forehead and about the mouth, then some stimulant may be administered. Strong, hot tea, without milk, is the best, because it is a chemical antidote to many poisons. Strong coffee is next in value. To either of these can be added brandy, whisky, wine, or

alcohol, in teaspoonful doses for an adult, and half as much for a child; the spirits should be mixed with a little hot water. Warm coverings are not to be forgotten; and if the depression be great, hot water cans or hot bricks, wrapped in one or two thicknesses of blanket, should be placed by the side of the chest, or a huge poultice placed round the body, or a blanket, wrung out of hot water and covered with a dry one.

2. Acid poisons. Oil of vitriol (sulphuric acid), and nitric and muriatic acids are heavy, sometimes yellowish looking fluids; the first, as its name implies, not unlike oil in appearance, but very heavy in a bottle. The others are lighter, and give off extremely pungent, irritating fumes. All discolor anything on which they fall; the first blackens white pine wood, the others turn it yellow. All burn horribly and leave no doubt of their caustic nature.

For these the proper treatment is to give an alkali. A tablespoonful of hartshorn may be mixed with two teacupfuls of water, and given; or almost unlimited quantities of soda, magnesia, potash, whitewash, chalk, tooth powder, whiting, plaster, soap, or even wood ashes, stirred up in water.

After this should come the provoking of vomiting; then the bland fluids mentioned above should be administered, rest secured and stimulation employed, if necessary.

Oxalic acid comes in small, heavy, bright, colorless crystals, making a clear rattle in a bottle or jar. For this the best antidote is lime in some form. If lime water is at hand, it may be given freely, or whitewash, tooth powder, chalk, whiting, or plaster from a wall. The latter may be crushed and stirred up in water, without regard to the grittiness, which will not do any harm.

Carbolic acid is usually in solution, as a thick, clear and dusty fluid. When taken by the mouth it causes whitening and shriveling of the mucous membrane, lining it with intense burning, and then numbness. There is also nausea, weakness and depression, sometimes actual collapse. It is a very dangerous poison, because it acts rapidly and benumbs the stomach, so that it is hard to provoke vomiting. This must be attempted, however, and large draughts of oil, white of egg, magnesia and water, or milk must be given. Rest, warmth of the body and stimulation must also be secured.

3. Alkaline poisons. The strong alkalies are ammonia, or

hartshorn—which is a clear fluid with an unmistakable odor—potash and soda, usually dissolved, and sometimes in the form of lye. Liniments sometimes contain these substances, and are swallowed by mistake.

The alkalies usually burn intensely. They must be combated with an acid. Vinegar can always be had, and there is nothing better. It should be given undiluted, and a pint at a time, if possible. Lemon juice may be used, or even orange juice, though the latter is too mild an acid to be of much service, unless the oranges are very sour. Vomiting should then be provoked, and followed by bland acid or oily drinks, rest and stimulation, if necessary.

4. Metallic poisons. Arsenic, sugar of lead, corrosive sublimate, and tartar emetic are not infrequently taken by mistake, because they are taken for various household purposes.

Arsenic comes as a white, sweetish powder, often used to destroy domestic pests, such as rats and roaches. It usually excites vomiting and violent pain in the stomach. At once large quantities of milk, white of egg, or flour and water, or oil and lime water must be given. The vomiting must be encouraged or provoked, and dialysed iron given. This can now be obtained at any drug store, and should be given freely, in tablespoonful doses, each dose being followed at once by a teaspoonful of common salt in a teacupful of water; or if this is not at hand, equal parts of sulphate of iron (green vitriol) and carbonate of soda may be dissolved in separate cups of hot water and then mixed and drunk. Afterward vomiting should again be provoked, followed by a dose of castor oil.

Paris green is an arsenical preparation. If taken as a poison, it must be treated like simple arsenic.

Sugar of lead comes in white lumps or powder, and calls for vomiting, Epsom salts, milk, eggs, and castor oil.

Corrosive sublimate comes in small colorless crystals, or in a clear solution. If taken, vomiting must be provoked, and some form of tannic acid given. Strong tea is the handiest thing containing this, and its administration should be followed up with eggs and milk.

Tartar emetic, a white powder, is best treated in the same way.

Phosphorus is sometimes chewed off matches by children. It is a poison which acts slowly, and affords ample time for securing

medical advice. But five-grain doses of sulphate of copper, dissolved in water, may be given, at intervals of ten minutes, until vomiting comes on. Then a dose of magnesia should be administered; but no oil.

Lunar caustic is sometimes swallowed. The antidote of this is a very strong brine of salt and water, given again and again; and vomiting should be provoked, until the vomited matters cease to have a look like thin milk.

Iodine, in the form of a tincture, is also sometimes swallowed by mistake. The antidote for this is starch and water.

5. Vegetable poisons. The vegetable poisons are so often taken in consequence of mistakes in the use of medicines, that it is a wise precaution that a poisonous drug should always be contained in a bottle of peculiar shape, or with something peculiar attached to its neck, and that there should also be a special place in each house where dangerous remedies, and such as are intended for external use, should be kept.

Opium preparations are opium, morphine, laudanum, paregoric, black drop and many poisonous nostrums sold as soothing-syrups, pain-destroyers, and drops for infants. Their symptoms are deep sleep, with narrowing of the pupil of the eye to a small circle, which does not enlarge in the dark. Here emetics must be used promptly and persistently, and vomiting produced over and over again. Strong coffee must be freely given as a stimulant. So long as the breathing does not fall below ten to the minute, there is no immediate danger of death; but opium is a treacherous poison, and requires all the skill that can be obtained to combat it. The important matter is to keep up the breathing. The custom of walking a patient up and down and slapping him with wet towels is to be deprecated, because it adds exhaustion to stupor. If an electrical battery can be obtained, and used, it is the best thing that can be done. The Faradic current should be used, and applied so as to stimulate the sensory nerves in the skin, so that they shall excite reflex acts of deep breathing. The next best thing is to lay the patient upon a lounge and slap his skin with the back of a broad brush or with a slipper. This is all the rousing that is necessary, so long as the breathing keeps above ten to the minute. Should it fall below this, or if the breathing should cease, artificial respiration should be employed.

Chloral is a damp, colorless, crystalline substance, usually seen in solution. Its symptoms and treatment are the same as those of opium.

Strychnine is an intensely bitter, white powder. It produces stiffness of the jaws, then of the limbs and body. It should be treated by provoking vomiting, giving a purge, and doses of thirty grains of bromide of potash, or twenty grains of chloral, or both, to an adult. The greatest quiet must be secured. The poisoned person should be put to bed in a darkened room, with doors, windows and shutters arranged in a way that shall exclude all sights, sounds and draughts, though permitting good ventilation.

Aconite is sometimes contained in liniments, and swallowed by mistake. In such a case vomiting must be brought on, and followed by the administration of stimulants. Strong coffee may be used, hartshorn (a teaspoonful in a teacupful of water), wine, whisky, or brandy. The patient will often feel a peculiar numbness or tingling in the arms or legs, which is an evidence that the poison has entered the blood, and makes the attention of a physician imperative. If there is depression, warmth should be used, as described when speaking of unknown poisons.

Hemlock, Deadly Nightshade, the Jamestown (or Jimson) Weed, Monkshood, and Toadstools are sometimes eaten, without knowledge of their poisonous character. Tobacco, too, sometimes causes poisonous effects. All produce deep depression, and must be treated with vomiting, followed by stimulation and warmth, very much as in the case of aconite poisoning.

Alcoholic liquors are sometimes taken in such large quantities as to be poisonous. When this is the case, there are evidences of deep stupor or depression. The course to be pursued is to cause vomiting, give hartshorn and water (a teaspoonful in a teacupful), and keep the body warm.

6. Decayed meats or vegetables usually excite vomiting, which should be encouraged until the stomach is empty, and followed by a dose of castor oil and some powdered charcoal.

Résumé. We have now completed the list of poisons that are at all common, and have seen what should be done in almost any case that is likely to occur. In conclusion, let it be remembered that when there is an alarm of poisoning, some *one*, at least, *must*

keep cool; then that a physician is to be summoned (sending him word, if possible, what poison has been taken); and that, until his arrival, the course indicated above should be followed. To save time in an emergency, the following table may be consulted, which gives the name of each poison we have already studied, and the proper treatment for it.

POISON.	TREATMENT.	
Unknown	Provoke repeated vomiting, Give bland liquids, Stimulate, if necessary.	
Acids— Sulphuric, Nitric, Muriatic, Oxalic	Give an alkali, Provoke vomiting, Give bland fluids, Secure rest, Stimulate, if necessary.	
Arsenic— Paris green, Scheele's green	Provoke vomiting, Give dialysed iron and salt, Give dose of castor oil, Secure rest, Stimulate, if necessary.	Repeat several times.
Sugar of lead	Give Epsom salts, Provoke vomiting, Give bland liquids, Give dose of castor oil.	Repeat several times.
Alkalies— Hartshorn, Soda, Potash, Lye	Give an acid (vinegar), Provoke vomiting, Give bland liquids, Secure rest, Stimulate, if necessary.	
Corrosive sublimate, Tartar emetic	Provoke vomiting, Give strong tea without milk, Give raw eggs and milk, Give dose of castor oil, Stimulate, if necessary.	Repeat several times.
Phosphorus	Provoke vomiting, Give five-grain doses sulphate of copper, or teaspoonful doses of turpentine. Give doses of magnesia, but *no* oil.	
Lunar caustic (nitrate of silver)	Give strong salt and water, Provoke vomiting.	Repeat many times.
Iodine	Provoke vomiting, Give starch and water, Give bland fluids.	

POISON.	TREATMENT.
Opium—	
Morphine ..... / Laudanum ..... / Paregoric, etc...	Provoke vomiting, repeatedly, Give strong coffee, without milk, Keep up the breathing.
Chloral.....	(Same as opium)
Croton oil.....	Provoke vomiting, Give bland fluids, and laudanum or paregoric.
Strychnine.....	Provoke vomiting once or twice, Give a purgative, Secure absolute quiet.
Aconite..... / Veratrum viride...	Provoke vomiting. Stimulate well, Keep head low.
Jamestown weed / Hemlock..... / Nightshade (belladonna). / Toadstools..... / Tobacco.....	Provoke vomiting, Stimulate well.
Alcohol.....	Provoke vomiting, Give hartshorn and water.
Decayed meats or vegetables.....	Provoke vomiting, Give a purgative, Give powdered charcoa..

To provoke vomiting, warm water may be used with or without ground mustard (a tablespoonful to a pint of water), or ipecac (a teaspoonful of the powder or a tablespoonful or so of the syrup), and thrusting a finger down the throat. It is best to give large quantities (that is, a pint at a time) of warm water whenever vomiting is to be excited.

Bland liquids are milk, tea, coffee, whisky, wine, etc., or hartshorn and water. Of this a teaspoonful in a teacupful of water will be enough for a dose. In making tea or coffee one must not wait to do it as if for the table, but mix hot water and the leaves or grounds, squeeze them well, stir together, and give the whole—leaves, grounds, everything. At the same time some may be made regularly, if there are conveniences for it.

Alkaline antidotes are hartshorn and water (a tablespoonful in two teacupfuls of water), soap and water, lime, whiting, soda, chalk, tooth powder, plaster, magnesia, whitewash, and even wood ashes.

Acid antidotes are vinegar and lemon juice. In giving an antidote never wait for it to dissolve. Just stir it up in any fluid at hand except oil, and have it swallowed immediately.

When laudanum is advised for such an irritant poison as croton oil, it must be given in a dose of half a teaspoonful to an adult, and this may be repeated in half an hour if the pain continues to be severe and there is no drowsiness.

SUNSTROKE.

Cause—Treatment and Subsequent Course of the Disease—Action of Cold Water.

The following cases occurred in the wards of the Presbyterian Hospital, in the service of Dr. J. P. Thornley, with whose kind permission they are reported.

During the six days from August 8th to 13th, inclusive, about one hundred and ten persons were brought to the hospital suffering more or less from the excessive heat. About fifty of the cases were of the milder forms, and not included in the report. Cold water was given, with which they sponged their heads and chests, and they were kept in a cool room and left the hospital in from fifteen minutes to twelve hours.

Cause. The cumulative action of the heat was pronounced; it was the third day of excessively high temperature and humidity when the first cases occurred. Then, on six successive days there were two, six, ten, twenty-one, seven, and four, respectively. Of the fifty cases, twenty-seven were between three and eight o'clock in the afternoon, four from eight o'clock to midnight, four from midnight to 6 a. m., and six more before noon. From noon to 3 p. m., nine cases were brought in. Thus there were forty cases from noon to midnight, and but ten from midnight to noon. There were but few in women, forty-six of the sixty-one cases being men.

The occupation of most of the patients involved exposure to the sun, though in a fair number, including all the women, this was not so.

The average age was thirty-six years, the oldest being seventy and the youngest nineteen years of age.

With few exceptions, the patients were large-framed, well-muscled, and robust individuals. Those that were the reverse did poorly as a rule.

Only one had had a previous attack, and that was on the day before admission. His was a fatal case.

The use of alcohol seemed to have a direct and unfavorable influence. The habit was marked in thirty-two per cent.; moderate in forty-six per cent.; denied in ten per cent.; in the remaining twelve per cent. no history was or could be obtained. Eight persons were markedly alcoholic on admission, and of these four died.

Treatment and subsequent course of the disease. The ambulance suregons were instructed to at least start undressing the comatose patients on their way to the hospital. Immediately after admission they were stripped of clothing, which took about thirty seconds. They were then immediately put into the bath, at least one of the house staff directing the treatment in each case.

With the first five cases the netted cot was used, the patient being constantly rubbed and sponged with ice-water. They were all in coma, and the sponging was used only because the tubs were not in readiness, the cots having been sufficient for the small number of cases treated in previous years.

The average temperature in these cases was 110.3° F., the lowest 105.6° F., the highest 115° F. Thirty-two minutes was the average duration of the bath, varying from fifteen to fifty minutes. The baths were stopped at from 104.5° to 100.6° F., the average temperature of the patients when removed being 101.7° F. Following the bath at an average interval of fifty minutes, ranging from thirty minutes to two hours, the temperature fell to from 100° to 59° F., the average being 98° F.

The tub bath was used in thirty-six cases, including those of all the comatose and delirious, and that of one conscious patient. The water was as cold as it could be kept, with ice constantly floating in it, usually at about 40° F. Four attendants continually rubbed briskly all parts of the body, the head being constantly bathed.

The average temperature in these cases was 108.9° F., the lowest 105° F., the highest 112.2° F. The baths lasted from six to sixty-five minutes, the average being twenty-six. When the temperature reached from 105° to 99.4° F., an average of 103.2° F., the patients were removed from the bath. In a time averaging forty-eight minutes, and varying from twenty minutes to two hours, the temperature dropped to 97.6° F., as an average, the limits being 93° and 100° F.

Ice sponge baths were also used in five cases of conscious or stupid patients, with moderate temperatures varying from 104° to 105.2° F., and averaging 104.5° F. They were bathed from eight to forty-five minutes, or an average of twenty-three minutes. The temperature at which they were removed was about 102° F., varying from 101° to 103° F., falling to 98.9° F., as an average, but varying from 99.8° to 97° F., about forty-six minutes after their being removed from the bath.

In all cases the temperature was taken every five minutes during the early part of the bath, and when it began to drop, as quickly as the thermometer would register. The temperature rose, even after the bath had been started, in five cases, but never rose over 0.6° F., usually in about five minutes.

Only eight patients received stimulation by drugs during the bath, and they were patients in whom the pulse was almost imperceptible. Camphor and ether were used for rapid action, and then strychnine, all subcutaneously.

The stimulating action of the cold water was remarkable. Patients that were apparently taking their last gasps would immediately respire more deeply, and a pulse almost impossible to feel would, in the course of a few minutes, be of good quality, though rapid. Those in coma would, when the temperature began falling, as a rule, rouse up, struggle, and become more or less delirious. Those delirious would resist the bath vigorously, then grow more quiet, and again become restless as the temperature fell more.

On removing the patients from the bath, they were rubbed dry with crash towels and covered with a blanket, and hot-water bottles were placed at their feet. If their condition indicated it, either from pulse, respiration, or any considerable falling of the temperature, they were further stimulated with camphor and ether, strychnine, digitaline, or atropine, hypodermically, and with whisky and hot water by the rectum, or, when possible, by the mouth.

Hydrotherapy and skilled and careful nursing seem to have been the chief factors; and very frequent recording of the temperature enabling the baths to be given at the earliest and, therefore, most valuable time; the use of the ice tub bath, with constant and general friction of the entire surface, thus reducing the temperature in the shortest possible time, and being stimulating rather than de-

pressing; the use of the same bath for all severe secondary elevations of temperature, and for the minor elevations sponge baths of ice water or of water at from 70° to 80° F., depending upon the individual case; and the repetition of these baths whenever the temperature is high enough to make them seem advisable.

All other means have seemed entirely inadequate.

HEMORRHAGES OR BLEEDING.

Course of the Arteries—Capillary Hemorrhage—Hemorrhage From the Veins—Hemorrhage From the Arteries—For Wounds High up in the Arm—For Wounds of Arteries of the Finger—For Wounds of Arteries of the Hand—For Wounds Below the Elbow—Wounds of Arteries of the Foot or Leg—For Wounds in the Thigh—Bleeding From the Arteries of the Scalp—Recapitulation — Bleeders — Treatment — Special Hemorrhages — Bleeding From the Mouth—Bleeding From the Nose.

There is no accident so appalling as hemorrhage, whether the bleeding comes from an external wound or from the rupture of a blood vessel in some internal organ. There is none which calls for so much nerve in combating it, nor any in which a little accurate knowledge can be more valuable.

The subject of the control of the hemorrhage will be better understood after taking a concise view of the anatomy of the organs of circulation. This cannot be made absolutely accurate without being too technical, but the variations from accuracy will not affect its practical utility. (See illustration.)

The blood starts from the left side of the heart, and is driven first into the aorta, which curves over above the heart and descends along the left side of the spinal column, within the chest and abdomen. From what is called the arch, at the beginning, are given off vessels which supply the head and arms. The former (the carotid arteries) run up alongside the windpipe and divide and subdivide in all directions. The latter curve forward and come out from under the chest over the first rib, and, passing under the collar bone near the shoulder, run down through the armpit and inside of the arm to the middle of the front of the forearm, on the thumb side, and the other along the little finger side. Thus, in the

upper arm the arteries follow nearly the same line as the seam in a coat sleeve. The two arteries of the forearm, entering the palm of the hand, join in a loop, from which vessels run down, one on each side of each finger, and one on the inner face of the thumb.

The aorta, as it descends through the chest and abdomen, gives off vessels to supply the internal organs, and near the lower end of the backbone divides and sends two large vessels out through the groin into the thigh. Each of these runs down in almost a straight line, between the muscles, to the middle of the hollow at the back of the knee. Just below this it divides into three branches. The first of these passes through to the front, between the two bones of the lower leg, and runs down under the muscle, close to the outer side of the shin bone, and passes out upon the instep at about the middle of the front of the ankle joint. Here it breaks up into smaller vessels that supply the top of the foot.

The second and third branches of the main artery of the thigh pass down the back of the lower leg, one on each side, close to the corresponding bones, and deep under the muscles. One passes back of the inner ankle bone into the inner side and sole of the foot. The other passes back of the outer ankle bone, to the outer side and sole of the foot. The arteries of the sole of the foot, like those of the palm of the hand, unite to form a loop, from which a vessel is given off for each side of each toe.

COURSE OF THE ARTERIES.

This is a brief outline of the course of the arteries. As they divide and subdivide, like the branches of a tree, they become correspondingly smaller, and they end in an inexpressibly fine network of minute vessels. These are called capillaries. Then, as the capillaries are a sort of splitting up of the smallest arteries, so, on the other hand, by the confluence of a number of capillaries, larger trunks result, toward which the current of blood constantly sets, and the beginnings of the veins are formed. These unite in a manner the very reverse of the branching of the arteries, and, growing, like rills and brooks and rivers larger and larger by repeated junctions of several into one, travel back to the heart in an opposite direction to, but alongside of, the arteries. Thus each principal artery has at its side at least one important vein. Up the

legs, up the inside of the abdomen and chest, up the arms and down the neck they pass, till they unite to form one trunk, which empties into the right side of the heart.

From this point the blood is pumped into the lungs to be aerated; from the lungs it is collected and emptied into the left side of the heart; and from the left side, as we have seen, it is pumped out to begin the circuit through which we have just traced it.

The previous illustration will give a fair idea of the course of the main blood-vessels, and will make clearer what may not have been understood from the preceding description.

It will be observed that the course of the blood-vessels is always in the safest part of the body or limb. They all lie where they are protected by bending a limb or joint—a natural act when attacked. They are on the inner side of the arm and forearm, when these are used for attack or defense. They are on the inner side of the thigh and at the back part of the leg—out of harm's way. In endeavoring, as shall hereafter be recommended, to check bleeding by pressing upon a main blood-vessel, this fact may serve as a reminder of the course it might be expected to run. To which this suggestion may be added, namely: When you are in doubt, feel for the pulsation of the artery and make pressure where you feel it beating. Another point, preliminary to considering the methods of arresting hemorrhage, is that blood from arteries is usually bright red and escapes in jets, while blood from veins is dark red or purple, and flows in a steady stream. Blood from capillaries is of a color between these two, and it oozes out.

Capillary hemorrhage follows every cut. The color of the blood is red; the flow is generally slow and not very considerable. It usually stops of itself. If it does not, the part may be elevated and cold water or ice or snow, or even vinegar, applied. If there is oozing from a large raw surface, a towel may be folded, dipped in water as hot as the hand can possibly bear, lightly squeezed, so as not to drip, and gently pressed upon the bleeding surface. This may have to be renewed once or twice, at intervals of a few minutes, but it usually acts like magic in this form of hemorrhage.

Hemorrhage from the veins is generaly slow and steady, and the blood is darker than in other forms. It rarely demands special effort to control it. When severe, the application of cold, and firm continuous pressure upon and below the wound, generally

suffices to stop it. Rupture of *varicose veins* in the leg may lead to dangerous hemorrhage, but this can usually be checked by applying a dry pad of cloth and binding it firmly upon the bleeding spot. In this case a ligature applied above the wound would only make matters worse.

A wound of the jugular vein, on the side of the neck, may also be followed by dangerous hemorrhage. This is also treated with a pad and pressure, which can be best made with one finger laid above and one below the wound.

Hemorrhage from the arteries is very dangerous. Here the blood is bright red, and spurts in a stream or leaps in jets from the divided vessel. If it be from a large artery, such as those in the root of the neck or the armpit, or the inside of the thigh near the groin, life will usually be quickly lost. Indeed, without a thorough acquaintance with anatomy, it is hardly likely that any advice that could be given here would be available in such cases. The only thing to suggest is to thrust a finger deep into the wound and see if firm pressure there will stop the bleeding. Or some other form of plug may be tried. The chances of success are, however, very slight.

But every one may, while awaiting skilled aid, do something when the arteries of the limbs are cut. The first duty in all such cases is to be cool as possible, then, as quick as is consistent with coolness. The principle that must guide every attempt to stop the bleeding is to obstruct the artery at the spot, or between the center of the body and where it is cut; for this is the direction in which the blood flows.

For wounds high up in the arm, strong pressure may be made downward, behind the collar bone, about at its middle (see Fig. 4). The thumb, or the handle of a large door key, well wrapped, so as to make a tolerably thick mass, can be thrust down, and if it does not seem to strike the artery the first time, it can be moved along, toward the breast bone and toward the shoulder, to see if it will hit the right place.

For wounds of arteries of the finger, pressure may be made on the side, by seizing it between the thumb and finger and pinching it, or by wrapping a cord around, or slipping on a rubber band.

For wounds of arteries of the hand, raising this above the head and making firm pressure on the bleeding spot, or with both

thumbs just above and in front of the wrist, will usually stop the bleeding. Or the wound may be packed with lint, or cotton, or old muslin, or linen, and bound firmly with a bandage. If this fail, resort must be had to the measures recommended for the next form of hemorrhage.

For wounds below the elbow, first grasp the upper part of the arm with both hands and squeeze as hard as possible; then let some one make a thick, hard knot, as big as an egg, in the middle of a handkerchief, place it over the middle of the front of the arm, immediately above the elbow, tie the ends tight at the back, and bend the forearm up so as to press hard against the knot (Fig. 4). This,

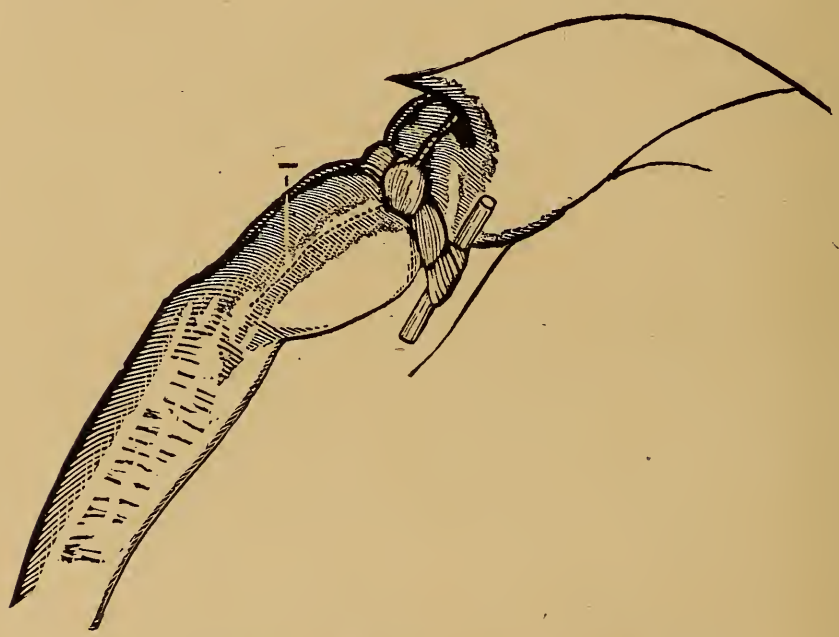

Fig. 13. View showing compress to stop bleeding from arm.

if successfully done, will obstruct the main blood-vessel (the brachial artery), which in this place lies in the middle line of the bend of the elbow.

For wounds in the upper arm, pressure may be made against the bone on the inner side and just below the swelling muscle, of which most people are aware is called the biceps, as shown in Fig. 5. A knot as big as a fist may be made in any piece of cloth and shoved hard up into the armpit, and the elbow then brought straight down and held or bound firmly against the side of the chest.

If either of these methods fail, or cannot be carried out, the "Spanish windlass" may be used. To do this, place some hard, round body, like a stone, in the large part of a handkerchief folded diagonally, and carry the ends of this around the limb, so as to leave the lump over the position of the artery—that is, over the bend of the elbow, or a little in front of the middle of the inside of the arm, near the shoulder. Then tie the ends of the handkerchief so as to make a loose loop, slip a stick through this and twist it round and round, so as to tighten the handkerchief, till the blood stops flowing, but no more! This is a much rougher procedure than the method described before, but one cannot be overparticular

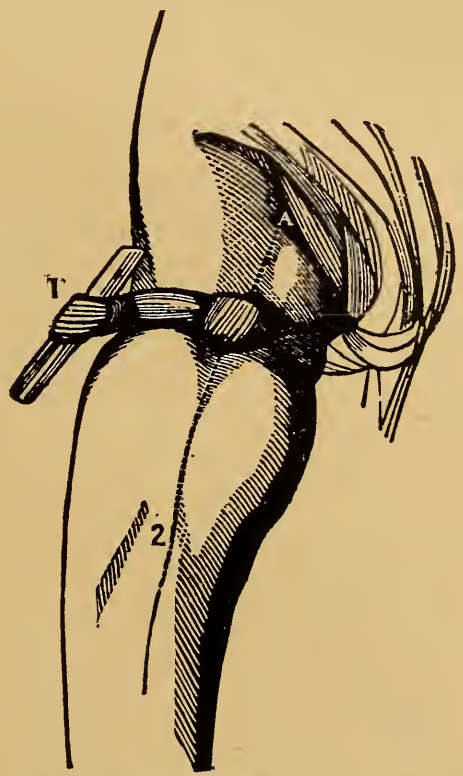

Fig. 14. View showing compress to stop bleeding from hip.

in such cases; so if the former fails, or no bystander is cool enough to carry it out, no time must be lost before the "Spanish windlass" is used.

Wounds of arteries of the foot or leg may be treated by firm pressure in the hollow just behind the knee (above the calf of the leg). This can be effected by placing there a knotted cloth, like that suggested for the armpit, and doubling the leg back until it

presses hard against it. In doing this the thigh must be doubled up toward the abdomen or the bending of the knee will soon become intolerably painful.

For wounds in the thigh, pressure must be made in the hollow immediately below the groin, about two-thirds of the way from the hip bone to the middle line of the body, where the artery of the thigh (femoral artery) comes out of the body, as shown in Fig. 6. This can be effected with the thumbs or with a rounded stick, or a key handle, or with a "Spanish windlass." The artery may also be closed by placing in the groin a knotted cloth or a large round stone, and doubling the leg back on the thigh (this is important), and the thigh forward, hard against the abdomen. If this latter plan does not succeed promptly some other of those mentioned should be tried and no time be lost in doing it.

Bleeding from the arteries of the scalp can be controlled by firm pressure upon and around the bleeding point.

Recapitulation. To go over this briefly again; remember: first, to keep cool; second, that the principal object is to obstruct the artery above the cut; and that this can be effected by pressure, in the several cases, in front of the bend of the elbow, in the armpit, behind the bend of the knee, or just below the groin. This can be made with the fingers, or with a knot held hard against the artery by a tight bandage, or by bending the limb up against it—or, in case of the arm, by pressing it hard against the chest. In case of failure, the "Spanish windlass" is to be applied to the same places.

In case none of the plans proposed can be carried out, a cut that bleeds profusely may be stuffed with a rag or dry earth, and this kept in place by pressure, with a bandage or handkerchief, or the cut part may be forcibly compressed in any way, or a finger thrust into the wound and held wherever it seems to do most good.

Finally, let it be remembered that fainting may put an end to hemorrhage, and that when consciousness is restored the bleeding may recur. So this possibility should not be overlooked. The treatment of a faint under these circumstances is the same as that of any faint; in addition to the measures demanded to check the bleeding, the head must be lowered, the legs and arms may be elevated, and warmth applied to the body, while stimulants are carefully administered by the mouth.

BLEEDERS.

There are persons who are known as bleeders; they belong to the class known to the medical profession under the name of "Hemorrhagic diathesis." These individuals may bleed to death from a very slight wound; extraction of a tooth has been followed by death from bleeding, also from the nose or in almost any other part. The bleeding may occur in some internal organ and death occur when the cause is very obscure. This condition is generally hereditary and often affects several members of the same family. The tendency to this form of bleeding may occur as early as the first year of life, but there is nothing in the appearance that indicates the existence of this form of hemorrhage, and it is not generally known until the act, a fall on the nose or the pulling of a tooth, starts a bleeding which is uncontrollable; the bleeding will be slow, oozing for days, until death comes from exhaustion and loss of blood. However, in many cases the bleeding slowly ceases and, after a long period, the person recovers. The blood may be discharged into the stomach, intestines, lungs, kidneys and brain.

An entire family of "bleeders" has been discovered in New York. The family consists of seven members, father, mother and five children, four of which are boys (all bleeders), the fifth is a girl six years of age, who up to the present time has shown no inclination to bleed more than any ordinary child.

The oldest child, now twelve years of age, has had severe hemorrhages on an average once every year since he was two years old, the bleeding would continue from three weeks to three months before it could be stopped. Bleeding from the gums had been almost constant since he was five years of age. During the day the blood is expectorated, while at night it is either swallowed or allowed to flow out upon the pillow.

The other boys have all had severe attacks of bleeding. One of them remained unconscious for five days from the loss of blood.

The daughter, who is six years of age, has been cut and injured repeatedly, but up to the present time she has shown no inclination to bleed abnormally.

This bears out the statement recently printed to the effect that bleeders are usually of the male sex, although the disease is trans-

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mitted by a non-bleeding member of a bleeder family and almost invariably by a female member.

SPECIAL HEMORRHAGES.

In bleeding from the mouth the blood must come from the gums, the throat, lungs or stomach. The most dangerous is bleeding from the lungs, and it is necessary to be able to determine whether the blood comes from the stomach or from the lungs.

The following symptoms will be experienced when the blood comes from the stomach: a sense of warmth and fullness over the chest, with nausea and vomiting, paleness of the face, the surface becomes cold and clammy and the blood rushes up in a full stream through the mouth and nose and is often expelled during the different acts of vomiting. The only other disease with which this bleeding is liable to be confounded is that of bleeding from the lungs. The person suffering from hemorrhage of the lungs will experience a sense of nausea with constriction across the chest, difficulty in breathing, and there will also be a hacking cough. The blood is coughed up in mouthfuls, bright red, frothy and mingled with sputum; there is also a sense of trickling behind the breast bone and for a few days after the bleeding has stopped the spittle will be tinged with blood. When the blood comes from the stomach there will often be found mixed with it particles of food and it will generally be of a darker color than when it comes from the lungs. Bleeding from the stomach does not often cause immediate death, except when due to some disease of the stomach, such as cancer, or ulceration, or diseases of the liver.

When bleeding from the nose the blood will nearly always be seen in the nostrils, and there is no cough, and it becomes thick and coagulates readily. When the blood comes from the teeth or gums it can be readily detected by looking into the mouth and examining the parts.

All these varieties of hemorrhage, from the lungs, stomach, nose and mouth, often come on suddenly, and valuable time is lost on account of the ignorance of those present. The two former are the most serious; in the treatment of these the first thing to be done is to keep the person absolutely quiet and in a horizontal position; ice should be taken freely and ice-bags applied across the chest; if

ice-bags are not at hand, cold cloths, wrung out of cold water should be applied. If, upon examining the pulse, the heart is weak and the person faint, a small amount of stimulants should be given; about a tablespoonful of brandy in about twice as much water. These remedies, which should be always at hand, if used intelligently, will be found of great benefit and will, in instances, save lives and will give the sick and dangerous person all the help that can be given during the time until the services of a physician are secured.

Bleeding from the nose is often only nature's way of getting rid of an excess of blood; but it may be so profuse as to threaten life. If this be the case, of course, medical aid will be summoned; but until it arrives the best thing that can be done is to snuff salt and water, or vinegar up the nose. A strong solution of alum in very warm water is also useful; but vinegar is less disagreeable, and will rarely fail to check the bleeding, unless the case is beyond any except skilled help.

Treatment: For this form of hemorrhage the same remedies must be used with greater persistence than in other forms of hemorrhage; when the loss of blood is great, as it usually is, tonics of iron should be administered; from ten to twenty drops of the tincture of chloride of lime, three times per day, should be taken for several weeks, and a good and nourishing diet, composed of milk, eggs, and fresh meats should be combined with a moderate amount of exercise. With this treatment, also careful attention to the bowels, patient will slowly recover. When this inclination to bleeding is known to exist the person should avoid all conditions which would give rise to a hemorrhage in any part.

MEDICAL AND SURGICAL EMERGENCIES.

Supplies for Emergencies—Surgical Case—Use of Contents of Surgical Case—How to Make Poultices—Medicine Chest—Doses and Uses of the Medicines.

SUPPLIES FOR EMERGENCIES.

The suggestions in the preceding pages have been, so far as practicable, such as could be carried out without having made any special provision for them. Nevertheless, occasionally appliances and remedies have been suggested, which would very much facilitate the treatment. These may be divided into medical and surgical. They may be arranged separately or together, but the former arrangement would probably best suit individual necessities.

SURGICAL CASE.

A surgical case suitable for almost any emergency should not contain so many things as to confuse one who has not a medical education. Its supplies should be few and simple, such as—

1. Some absorbent cotton.
2. A roll of old muslin or linen.
3. Bandages, two and one-half inches wide and six yards long, rolled up.
4. Rubber adhesive plaster, on a spool, in a strip two inches wide, and not less than a yard long.
5. Scissors.
6. Pins (ordinary and safety pins).
7. Needles threaded with stout thread.
8. A bottle of hartshorn, with a glass or rubber stopper.
9. A bottle of laudanum, with dose marked on it.
10. A bottle of good whisky or brandy.

USE OF THE CONTENTS OF THE SURGICAL CASE.

1. Absorbent cotton can be obtained at any drug store. It is perfectly clean and soft, and is prepared in such a way that—instead of resisting moisture, as ordinary cotton does—it will absorb it with great rapidity. Thus it will take up discharges from wounds, and when a cool or hot application is desired, it can be soaked with cool or hot water. Sometimes it is very convenient to put it on dry, and then squeeze the water upon some part of it from a sponge, when every part will rapidly become saturated.

For padding splints, or making cushions to prevent pressure of any kind, there is nothing so good as absorbent cotton.

2. Old muslin or linen can be torn into any shape or size that may be required, and can be used to spread poultices upon. It is also useful to make broad slings of.

3. Bandages of the kind described are used to keep applications in place, to secure parts to splints, and to prevent injurious motion. The simplest way to apply them is to make circular turns around any part. When the latter is of even size this is a very easy matter. Where the part is larger at one end than the other, the ordinary circular turns would not fit smoothly. To accomplish this, the rule is to begin at the small end and make a few turns, round and round, one immediately over the other, and then to begin to move up the limb spirally. So long as a turn can be made to smoothly overlap the one before it about one-third, this spiral is all that is required. But as soon as it puckers, the bandage is not carried on as before, but is turned down, so that the inner face now looks out, and the bandage instead of passing up, passes downwards, so as to make a sort of inverted V—so, Λ. On now carrying the bandage on round the part, it will be found that it comes to the front, just overlapping the preceding turn, and the same process can be repeated, until the whole bandage is neatly applied.

At joints, like the ankle, knee, and elbow, the bandage may make a sort of figure 8, the middle or crossing part being in the bend of the joint. and the two loops, one above and one below it.

Bandages should never be put on so tight as to cause pain, and never drawn tighter above than below.

Bandages may be fastened by pins, by stitching, by strips of adhesive plaster, or by splitting the end and carrying one tail on

as before and turning the other back to meet it and then tying the two together. For narrow bandages, the latter is the simplest plan; for wide ones some one of the others is better.

The width of two and one-half inches is that which is oftenest convenient. When a narrow bandage is called for—as for a finger—one of the former may be torn down the middle; or if rolled up, it can be laid on a firm surface and the whole roller cut in half with a sharp knife, just as one would cut a sausage. This quickly and easily makes two good finger bandages.

4. Rubber adhesive plaster is better than any other kind, because it can be applied without any heat or moisture. It sticks of itself. When applied to a hairy part, the hair should be shaved off if possible. If not, when the plaster comes to be removed, it must be soaked off, or it will pull the hair out and cause great pain.

Another point to be remembered is, that in changing adhesive plaster dressings only so much should be removed as is necessary or as cleanliness demands. The rest may be left on and the new dressing applied up to it or over it.

The plaster is most convenient to use when in strips, which can be cut easily and without waste if needed smaller, and additional strips applied side by side, if a greater width is wanted.

5, 6, 7. The use of scissors, pins and needles need not be explained.

The points of pins should never be left sticking out, and care should be used to avoid sticking either pins or needles through the patient's skin.

8. Hartshorn is to be used as a stimulant to the heart and to the nervous system. A teaspoonful may be put into a tumblerful of water and a teaspoonful of the mixture given every few minutes. Its use by the nose everybody is familiar with. Yet it may be worth while to say that a full bottle of hartshorn should never be brought near to a patient's face. The stopper may be wetted and held under the nose, or a few drops put on a handkerchief, or the hand, and used in the same way.

9. The laudanum bottle should be marked "Poison!" and have the dose marked on the label. In surgical cases, where there is much pain, a full dose is called for, and to give less is to trifle with the sufferer.

As already remarked, laudanum is one of the very best local applications to wounds and bruises. It can be used by soaking a proper quantity of absorbent cotton, or a piece of old muslin, and laying it upon the injured part.

10. About the whisky, it may be remarked, that a large dose is almost invariably useless or injurious. Even for an adult—unless a confirmed drinker—the proper dose is a teaspoonful in a small quantity of hot water—or cold water, if hot cannot be had—repeated every few minutes until some effect is produced, or a couple of ounces—about half a small teacupful—have been given.

HOW TO MAKE POULTICES.

Poultices. The commonest materials for poultices are bread, flaxseed, hops and mush. A hop poultice may be made by pouring hot water upon hops till they are well moistened. A bread poultice is made by soaking the inside of bread in hot water or milk, and mashing it quite soft and even. With flaxseed or corn-meal the way is to put the poultice material on a plate, and add just enough hot water to moisten it. This is worked in with a large spoon or table knife, just as a salad dressing is made. Then to this thick but damp mass, enough hot water is gradually added and worked in until the whole is almost soft enough to run, but not quite. Poultices should be spread thick. To spread a poultice, a piece of fine, old muslin (or a piece of open-meshed stuff, such as cheese cloth is made of, can be used), twice as long as the poultice is to be, is laid on a flat surface, and one-half of it spread smooth with the poultice material. The other half is brought over and pressed down on top of the poultice material, or another piece of muslin, or a piece of tarlatan can be used for this purpose, so that the poultice material shall not come into immediate contact with the skin; then, when it comes time to be removed, it will come off easily, all at one time, and not leave any behind to stick to the skin.

A poultice must be put on hot. To secure this, it may be spread over a hot plate. A simpler plan, however, is to take the finished poultice up by its edges and lay it for a moment or two on something hot, or dip it into a vessel containing boiling water. Care must however be taken not to put on a poultice so hot as to burn.

To keep a poultice warm when applied, it should be covered with oiled silk or several folds of bandage.

It may be remarked that nothing has been said here about the use of "lead water and laudanum" or arnica, so often recommended for bruises and cuts. The reason for this omission lies in the fact that neither has any merit superior to that of cold water or laudanum alone. When a part is hot and angry, there is nothing better for it than the use of cold water constantly renewed until the heat and irritation have subsided. When pain is to be combated, laudanum alone is the best thing to use locally.

MEDICINE CHEST.

A small box can be bought or made, to hold a few things likely to be useful in accidents or sudden sickness. It ought to contain—

Absorbent cotton.

Sticking plaster—rubber plaster (on a spool) is best, because it requires neither heat nor moisture for its application.

Bandages of old muslin or flannel.

A piece of oiled silk.

Thread and needles.

Pins (ordinary and safety pins).

Cosmoline, vaseline, or cold cream.

1. Aromatic spirits of ammonia.
2. Tincture of asafetida.
3. Oil of cloves.
4. Hoffman's anodyne.
5. Syrup of ipecac.
6. Laudanum.
7. Magnesia.
8. Mustard.
9. Paregoric.
10. Spiced syrup of rhubarb.
11. Turpentine.

To these may be added, if quite convenient: camphor water, essence of ginger, lime water, and sweet spirits of nitre.

Of the eleven first named, a convenient quantity to have would be two fluid ounces; except of No. 3 (oil of cloves), of which a fluid drachm would be plenty, and No. 7 (the magnesia), and No. 8 (the mustard), of both of which an ounce would suffice.

The laudanum and paregoric ought to be in bottles of an altogether different shape from those containing the other remedies; and these, as well as the oil of cloves bottle, should be marked "Poison!" and have a tape or small ball and chain attached to their necks, so that it could be felt in the dark. Each bottle should have its proper dose plainly printed or marked on the label.

DOSES AND USES OF THE MEDICINES.

1. Ammonia. The aromatic spirits of ammonia—hartshorn—is a valuable remedy in cases of sick stomach, and even vomiting. It is also useful in cases of nervous or sick headache, as well as in simple nervousness. The dose is, for an adult, twenty-five drops; for a child, ten drops, in about a wineglass full of water. This may be given every ten minutes, almost indefinitely.

2. Asafetida. The tincture of asafetida is a nerve tonic, and also very soothing to the bowels. There is nothing better for causing expulsion of wind. The dose is, for an adult, a teaspoonful; for a child, twenty drops in a tablespoonful of water. It can often be used as an injection when it could not be given by the mouth. In this case the quantity to be given is a tablespoonful for an adult and a teaspoonful for a child, in a small teacupful of warm water.

3. Cloves. The oil of cloves is useful as a local application in toothache. It is also helpful in indigestion, in doses of three drops for an adult, and one drop for a child. It can be given rubbed up with a little sugar, or a teaspoonful of sweet oil.

4. Hoffman's anodyne is useful in cases of hysterics and nervous frights or chills. The dose is, for an adult, a teaspoonful in a wineglassful of water. Children rarely require medicines of this sort. But when they do, as is the case with certain high-strung children, half the dose for an adult may be given.

5. Ipecac. The syrup of ipecac is a fairly good emetic. But it must be used freely. An adult should be given a good tablespoonful, and an infant, as near a teaspoonful as possible. It will do no harm, and when the emetic is called for, it is no time to run any risk that the dose given may not be large enough. It is often usefully employed in cases of poisoning, convulsions, croup, whooping cough or asthma.

6. Laudanum. Laudanum is the tincture of opium, and has

all its properties. It is one of the most useful drugs in the world, and yet it is a dangerous one. There need, however, be no fear of poisoning with any preparation of opium if ordinary doses are given, if these doses are not given closer together than half an hour, and if they are *stopped* as soon as pain is decidedly lessened or drowsiness comes on. Occasionally small doses of opium cause great alarm, but there is much less fear about opium poisoning among doctors now than there used to be. It may be considered safe to give twenty-five drops of laudanum to any adult, when there is severe pain, and to repeat this dose every half hour until the pain is lessened or drowsiness begins to appear. One of the signs of the effect of opium upon the system is a contraction of the pupil of the eye, which does not expand in the dark. This ought always to lead to a discontinuance of any preparation of opium which has been used.

To check diarrhea, sometimes, a drop of laudanum every hour will prove successful very soon. Yet, ten or fifteen drops may be given to an adult after each movement, if the smaller quantity does not suffice.

For cuts and bruises there is no better application than pure laudanum. A soft cloth soaked in laudanum can be bound on, and occasionally wetted with it, without removal. It quiets pain and promotes healing. The same application is often very soothing in face-ache, toothache and earache, as well as in the pains of rheumatism and neuralgia. (See "Paregoric.")

7. Magnesia. Magnesia is a mild remedy to open the bowels, usually employed for children. The dose being a teaspoonful, given in water or milk. It may also be used for sour stomach, when a pinch will generally be enough.

8. Mustard. In the use of ground mustard for plasters, it should always be mixed with an equal part of flour. Even then it acts quickly and must be removed in a few minutes, as soon as the skin is well reddened. Where it is desired to leave a mustard plaster on for more than a few minutes, it should be made of one part mustard to three or more of flour. Every mustard plaster should be removed as soon as the skin becomes red, and not allowed to make a blister, because such blisters are excessively painful and very hard to heal.

As an emetic, mustard is used by stirring a teaspoonful of the ground seeds in a teacupful of luke-warm water.

9. Paregoric. Paregoric is an opium preparation which contains, besides opium and other things, some camphor. It is the best preparation for children, because the dose is easier to measure than that of laudanum. An infant a few hours old will stand three drops and in a few days, five. In a month, ten are not too many, and twenty may be given any time after six months. An adult can take a tablespoonful. It may be used internally in all the cases where laudanum has been recommended. (See "Laudanum.")

10. Rhubarb. The spiced syrup of rhubarb is an excellent mild laxative for the bowels. A teaspoonful is the dose for an infant or small child. It is useful at the beginning of a diarrhea in children, as it empties the bowels of what irritates them, and also has a soothing and healing influence.

11. Turpentine. Spirits, or oil of turpentine can be used wherever mustard has been recommended as an external application. For this purpose a soft flannel or muslin cloth should be dipped in turpentine, wrung out nearly dry, laid on the surface and covered with oiled silk or a few thicknesses of dry cloth, to prevent evaporation.

Red pepper may sometimes be used instead of mustard, though it is more energetic in its action. When moistened and applied to the skin, red pepper first causes a feeling of warmth, and later of intense, fiery burning. If left on long enough, it will cause a blister. But this ought never be done. Red pepper may be used in cases of colic or cholera morbus, where it quiets pain by its counter-irritant effect, and stimulates the nervous and circulatory systems. In nausea it sometimes does good by the latter process.

DOMESTIC EMERGENCIES.

Cholera Morbus—Colic—Vomiting, or Nausea—Diarrhea—Croup—Whooping Cough—Asthmatic Attacks—Nervous Attacks—Toothache—Earache—Poisoning by the Common Poison Vine—Neuralgia of the Face.

No less important than the emergencies thus far considered, most of which have a public significance, are a few more which usually occur within the limits of the household and try the knowledge and patience of anxious parents. If these emergencies arose only when skilled assistance could be had in a moment, they might, perhaps, be omitted from a book like this. But they have a way of presenting themselves at the dead of night, in traveling, at the seashore, or in the mountains, where doctors are not known or are not to be had promptly, and those upon whom the burden of meeting them falls may be glad to have some simple suggestions as to what they may do until they can commit their interests to others better prepared to guard them.

CHOLERA MORBUS.

Cholera morbus produces vomiting and purging and violent cramps in the stomach. The pain may be so severe as to actually threaten life. There is then a pinched expression of the face, and a cool, clammy skin. In such cases, something must be done at once to relieve the pain. For this, laudanum may be given—half a teaspoonful to an adult, or ten drops to a child over twelve years old. At the same time heat must be applied to the stomach. For this purpose a mustard plaster can be used, or cloths wrung out of hot water and sprinkled with turpentine or with red pepper, or a hot-water bag, or bottle, or a plate heated at the fire and covered with a cloth. An injection containing a small teacupful of warm water or milk, to which a tablespoonful of tincture of asafetida has been added, often gives great relief.

COLIC.

Colic causes violent griping pain in the abdomen. It usually is due to something indigestible which has been eaten. It should be treated by hot applications to the abdomen, such as have just been mentioned. A purgative, such as castor oil or ten grains of calomel may be given by the mouth, and an injection of water and asafetida administered, as described in speaking of cholera morbus.

VOMITING, OR NAUSEA.

Vomiting, or nausea, due to something objectionable in the stomach, may be treated by giving large draughts of fairly hot water. If it be due to nervousness or a slight indigestion, it can usually be corrected by swallowing small pieces of ice, or tablespoonful doses of lime water, or a pinch of soda, or half a teaspoonful of aromatic spirits of ammonia in a wineglassful of water, together with the application to the pit of the stomach of a mustard plaster, or of a flannel cloth wrung out of hot water and sprinkled with a tablespoonful of turpentine or some red pepper. A lump of ice held against the pit of the stomach often does much good. The sufferer should always lie down until the nausea passes off.

DIARRHOEA.

Diarrhea is usually due to a cold or to something indigestible which has been eaten. In either case it is an effort of nature to cure itself of something hurtful. So, at the start, the best thing to be done is to give a mild purge. It is a good plan to give a teaspoonful or two of a mixture of equal parts of olive oil and castor oil to an infant, and a tablespoonful or two to an adult. Half these quantities of a mixture of glycerine and castor oil acts well. For infants nothing acts better than a tenth of a grain of calomel, given every hour or half hour till it produces a free movement. A small dose of equal parts of sweet oil and castor oil, or spiced syrup of rhubarb or magnesia is the best. After this, if the movements of the bowels soon return, half a teaspoonful of ginger in a wineglassful of water may be given to an adult after every passage. If this does not check the diarrhea, ten drops of

laudanum may be given to an adult after each passage. For an adult, also, an injection, made of half a small teacupful of boiled starch, to which thirty or forty drops of laudanum have been added, often gives immediate relief. For a child over two years old, half a drop of laudanum may be given after each passage, until the diarrhea seems checked, or there is some evidence of drowsiness. A simpler remedy, which often acts well, is a teaspoonful of raw flour in a glassful of cool water, to be taken in two doses, half an hour apart.

CROUP.

Attacks of spasmodic croup, though very alarming, are rarely dangerous. There is probably much less real croup than is supposed, and the hoarse cough which children sometimes have after taking cold, may lead to measures which make it much worse for all concerned. Parents need not get excited when they hear what is called a "croupy" cough. When it occurs, they should see what can be accomplished by allaying the alarm of the child, and by diverting its mind. The reading of some favorite story or the exhibition of a favorite toy may cause all the symptoms of croup to disappear.

When such mild measures are of no avail, and the symptoms become more urgent, the little sufferer should be given an emetic of a teaspoonful of syrup of ipecac or a heaping teaspoonful of powdered alum, followed by a draught of warm water. Cloths wrung out of water as hot as can be borne should be wrapped around the throat and laid upon the chest. They should then be covered with something to keep the heat in—like oiled silk or a dry cloth.

This is all that can ordinarily be done with advantage till a physician arrives. But it usually gives decided relief. In this case, and even if it does not, natural anxiety should not drive parents to be wanting to do something else all the time. They may renew the hot cloths as soon as they begin to grow cold, but beside this there is nothing to be done but to wait until there has been time for the spasm to pass off. This is hard to do, it is true; but it is the best thing to be done, and far better than the fuss and worry, to parents and child, of trying a variety of methods.

In whooping cough there is a strong nervous element, and a spasm of whooping cough is often brought on by the example of another child. So, when a child is seized with a fit of coughing, it ought, if possible, to be at once separated from other children, for its own good and for theirs. Then, if the fit does not pass away in the usual time, it may sometimes be cut short by pressing a lump of ice against the chest, or by placing hot cloths there.

ASTHMATIC ATTACKS.

Asthmatic attacks may be treated in several ways. One method is founded upon the fact that asthma is a nervous manifestation, which grows worse the more the attention is directed to it. If the attention can be diverted, the attack will often pass off.

Occurring, as it usually does, at night, the darkness, the surprise, the absence of surrounding activities, increase its effects. If the sufferer be a man, and will get out of bed, put on his gown and slippers, light his gas and take a book or paper and begin to read, he will, in many cases, soon find his trouble diminishing and finally disappearing. If he be a smoker, his cigar or pipe will help him in this emergency.

A less agreeable method is to take an emetic. Another is to smoke the asthma cigarettes sold in every drug store. Another is to get some steaming hot water in a basin, pour into it a tablespoonful or more of Hoffman's anodyne, and breathe the ascending vapors. One of the best remedies is a full dose of opium in some form—for an adult, thirty drops of laudanum, or a tablespoonful of paregoric. As soon as this takes effect, the spasm of asthma will disappear.

NERVOUS ATTACKS.

Nervous attacks, which may take the form of shivering fits, are to be treated by putting the patient to bed, if possible, and giving strong hot coffee, or hot sweetened water, and by applying heat to the body by a bath or hot cloths or bottles, with a mild mustard plaster or turpentine placed on the pit of the stomach. A teaspoonful of camphor water, of valerian, or of Hoffman's anodyne will often prove of great service.

TOOTHACHE.

Toothache, depending upon a cavity in a decayed tooth, is usually very easy to stop. To do this, a fine crochet needle should have a very small bit of clean cotton twisted round its point, and with this, the hole in the tooth should be thoroughly swabbed out. Then the point of the crochet needle should be cleaned and another little ball of cotton, like a very small shot, should be dipped in oil of cloves and caught up with the end of the needle. It should then be laid in the hollow tooth and pushed in, not *too* hard, with the end of the needle. This rarely fails to relieve such a toothache. Sometimes filling the cavity with baking soda will stop the pain.

When toothache is not due to a hollow tooth, a somewhat severe but usually efficient plan of treatment is to lay between the gum and cheek a little wad of cotton, the size of the end of the thumb, soaked in spirits of camphor. This makes a sort of blister, but generally cures the toothache, which is much harder to bear.

EARACHE.

Earache should always suggest an examination of the teeth, and if one be found decayed, it must be extracted or at least cleaned out and packed with cotton and oil of cloves, as described in speaking of toothache, for many earaches depend upon diseased teeth.

In case this is not called for, or does no good, a folded cloth, wrung out of hot water, with a teaspoonful of laudanum poured over it, or a big, hot poultice—for which hops is the best material—should be applied to the side of the head and kept as hot as possible. Hot drinks should be given also, and enough laudanum to cause relief from pain.

The occurrence of an earache should always lead to consulting a doctor, for it is often of importance as a sign of disease which may seriously affect the hearing.

POISON VINE.

Poisoning by the common poison ivy vine causes red blotches, and wheals, and blisters on the skin, with great burning and itching. It is best treated by applying cloths soaked in a solution of

soda, a teaspoonful to a teacupful of hot water. Dusting with magnesia or ordinary toilet powder is also grateful.

NEURALGIA.

Neuralgia of the face may come on suddenly, when the advice of a physican cannot be obtained. In such a case, the application of a hot cloth, wet or dry, may do much good, or painting the painful part with oil of peppermint. On the other hand, cold applications may do more good, although this does not often happen.

FRACTURES OF BONES AND DISLOCATIONS OF JOINTS.

Causes of Broken Bones—Variety of Fractures—Symptoms of Fractures—Treatment of Fractures—Dislocations of Joints. Dr. Lorenz' Methods—Causes of Dislocations—Prominent Symptoms—Treatment of Dislocations.

The human body is built upon a bony frame-work held together by muscles and ligaments, and like other superstructures, when the foundation gives way, the rest is rendered useless to a greater or less extent, for a time at least.

The aid required of a nurse in the case of a broken bone, depends largely upon the complications arising because of the fracture, or the means by which the fracture was produced; thus a so-called simple fracture of the leg, produced by a fall, would require very different management on the part of the nurse than the fracture of the leg due to a gun-shot wound, and so-called joint fracture, or the fracture of a leg by a sharp instrument, in which the soft parts, muscles, nerves and blood-vessels are injured.

In the simple fracture of a leg, the nurse is only required to put the part at rest, apply cold or heat, and await the surgeon's arrival; whereas in the fracture of a leg with an internal wound of the soft parts, her first duty may be to stop hemorrhage or apply an aseptic or antiseptic temporary dressing, or perhaps more often to stop hemorrhages and apply a temporary dressing at the same time, and then await the surgeon's arrival for further instructions.

CAUSES OF BROKEN BONES.

Internal violence or intense muscular contraction may cause fracture of bones. The bone may give way immediately at the sight of violence, for example, a wagon wheel going over a leg

or thigh, the bone giving 'way immediately beneath the wheel. Fractures may also occur by transmitted violence; for instance, patient may fall with arms extended, and the hands extended on the fore arms, or with the hand extended, and yet it may not be the bones of the wrist that give 'way, but one or both bones of the fore arm, as occurs in persons who accidentally stumble, and in order to protect themselves, put one or both hands out, the whole force of the fall being received by the extended hand; as a result, the bones are fractured, and also some part of the arm other than the hand.

VARIETY OF FRACTURES.

There are many divisions of classifications, among the most common forms are the simple, complete and incomplete, compound, complicated, mixed, and green stick; the latter variety is found in children in which the bones are not fully developed, also those within joints, such as the shoulder and hip. Fractures may be known by what is called transverse, where the bone is broken directly across, or they may be oblique, where the bone is broken and the fracture extends quite a long distance along the bone.

SYMPTOMS OF FRACTURE.

Pain is a very common symptom, as in all fractures there is some pain. Deformity is also present in all fractures where the bones are broken across. Just as soon as the bone is broken, the muscles of the part are thrown into a condition of spasm or contraction. By these spasms or continued contraction, the broken ends of the bone are pulled together, one upon the other. In other words, the broken ends of bone override each other, and thus produce deformity, loss of function and increased motion, or unnatural movement is also experienced, and there is generally where the bones are broken across, by rubbing the two ends together, a grating sound, which can be transmitted to the examining surgeon's hand and ear. Swelling of the parts develop soon after fractured, and it may be severe; where the bones are fractured in many places, it is known as a compound fracture, and is a more serious form.

TREATMENT OF FRACTURES.

There is nothing of importance which may be said in this work which would be of very great benefit as to treatment, as it is enough to know that a fracture is present, and that services of a surgeon are an absolute necessity, and that the services be secured as expeditiously as the circumstances will warrant.

DISLOCATIONS OF JOINTS.

Dislocations or luxations, as commonly understood, are the separations of joints, and may be divided much as are fractures. The bones of the human body are joined together and kept in position by ligaments, and the ligaments are of different size and shape, thus some are broad, some are long, etc. They are so formed as to afford protection and strength to the joint.

CAUSES OF DISLOCATIONS.

The cause of dislocations may be lack of proper development, as is well illustrated in congenital dislocations of the hip, the child being born with an abnormal hip joint articulation. The Lorenz operation for the deduction of congenital dislocation of the hip, Dr. Lorenz being the professor of orthapedic surgery in the University of Vienna, is receiving attention from the medical profession all over the United States. The cause of this is the bringing of Dr. Lorenz to this country to operate on a child of a Chicago millionaire, who was born with a congenital dislocation of the hip. In this form of dislocation of the hip, instead of being in its natural place or cavity in the joint, the head of the femur is found outside. Consequently it is impossible for the hip joint to move. Dr. Lorenz has succeeded in reducing the dislocation by putting the bone back into the place where nature should have left it without any surgical operation, and by manipulations, rest and treatment he has succeeded in making a useful joint in what would otherwise be useless throughout life.

As with fractures, the long bones of the upper extremities are more often the seat of dislocations than are other bones of the body.

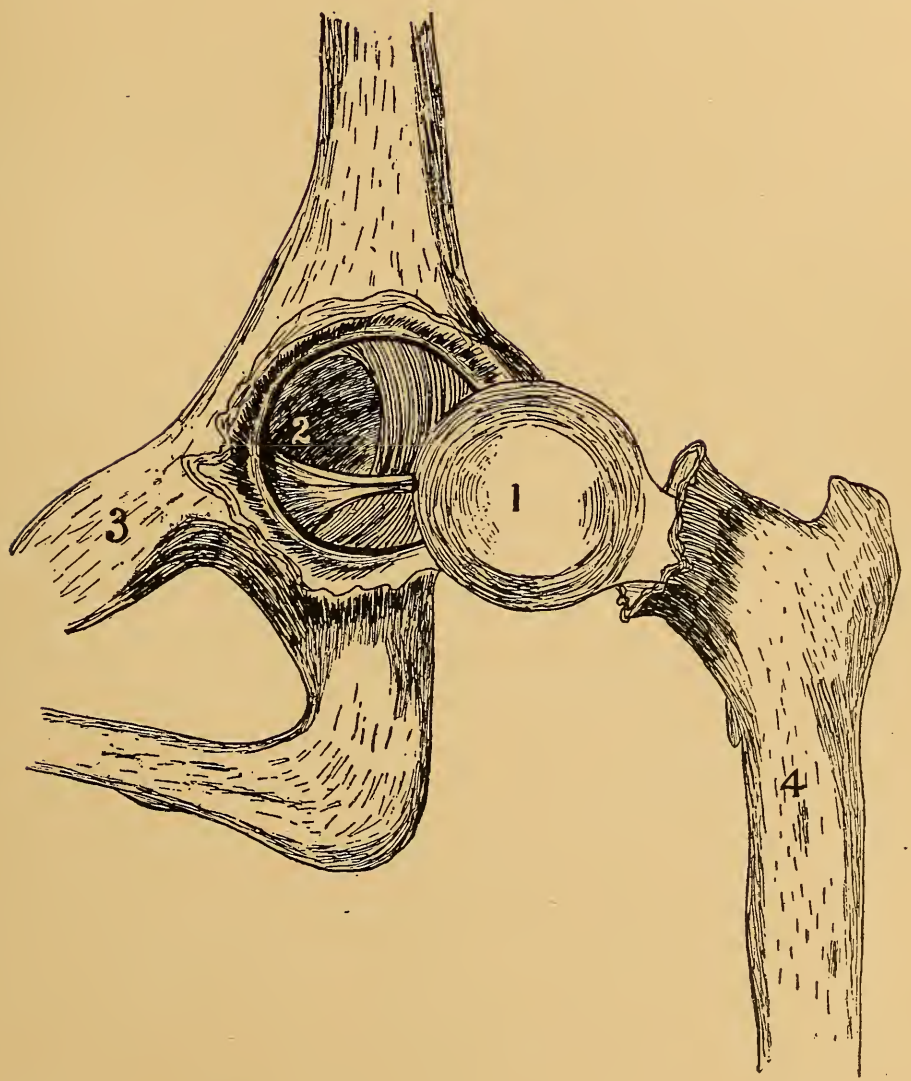

Fig. 15. Hip joint. No. 1, head; 2, acetabulum; 3, pubes.

PROMINENT SYMPTOMS.

The prominent symptoms of dislocation are deformity, pain, swelling, loss of function, and instead of increased mobility as in fracture, the part is fixed. It is well to remember that a fracture may occur in any part of the bone, but a dislocation appears only at the joints.

TREATMENT OF DISLOCATIONS.

The most important thing to bear in mind in relation to the treatment is that the sooner surgical aid is obtained the better, and the less trouble there will be in putting the bone back into place, the less danger there will be of complications. The necessity for bandages, splints and dressings will, of course, adjust itself to those who have the case in charge.

VOMITING.

CAUSE AND TREATMENT, PRESCRIPTION FOR—HICCOUGH, CAUSES AND TREATMENT.

Vomiting is, of course, a symptom, not a disease, and rises from a large number of causes, some of which are very unimportant, and others very serious. The most frequent cause is improper food and improper digestion. Other causes are located in the brain, and may be due to hemorrhages in the brain, and inflammation of the covering of the brain, or of the brain itself, or a poisoned condition as in uremia. All of these conditions cause an irritation of the part of the nervous system which controls vomiting, and are serious conditions.

It is important to bear in mind that vomiting due to disorder of the walls of the stomach may depend upon either of two conditions. The mucous membrane of the stomach and its nerves, may be over-excitable, or the opposite condition may exist, and it may be depressed. For this reason, it will be understood that two modes of treatment are necessary. Sometimes a prescription of the following substances is of great service in allaying the excitable condition of the stomach:

Subnitrate of bismuth, 2 drachms.
Bicarbonate of soda, 6 drachms.
Make into twelve powders; take one every two hours.

In other cases, if the vomiting is severe, and there has been much fermentation of food, the following will be of value:

Carbolic acid, 3 drops.
Bismuth of subnitrate, 3 drachms.
Make into ten powders, taking one every two hours until there is some improvement.

In other cases, where there is a weakness in the stomach, due to feeble digestion, the following will be found useful:

Tinct. of nux vomica, 10 drops.
Cinnamon water, 2 ounces.

Take a teaspoonful every four hours. In all cases of persistent vomiting, counter irritation should be applied over the stomach in the form of a mustard plaster, or, if preferred, an ice-bag may be put at the back of the neck or along the spine. Food given at this time should be very carefully prepared. The white of an egg with a little lemon added will be found grateful, also milk with a little lime water added. Another important point to observe is not to give much at a time, but give in small amounts frequently.

HICCOUGH.

This is an affection arising from many causes, depending upon irritability of the nerves supplying the diaphragm, as a result of gastric irritation, nervousness, uremia, and is a complication of several exhausting diseases, such, for example, as typhoid fever.

Hiccough is produced by the sudden ascent of the diaphram, whereby a vacuum is formed in the chest, into which the outside air attempts to rush, but is prevented from doing so by the sudden closure of the windpipe. The peculiar sound of the hiccough is thus developed. Generally the symptom stops of its own accord, but it may become continuous and excessive. The remedies to be applied are used according to the cause of the disorder. Sometimes it is due to taking too much acid into the stomach, and sometimes the opposite condition exists. In cases where the effection comes on after meals and is due to indigestion, a course of tonic treatment will often give relief. The following prescriptions have been found useful:

Bicarbonate of soda, 1 drachm.
Tinct. of nux vomica, 1 drachm.
Tinct. cardamom, 2 ounces.
Take a teaspoonful before meals in half a glass of water.

INDIGESTION AND BILIOUSNESS, WITH PRESCRIPTIONS FOR SAME.

Biliousness is a common condition, causing not a little suffering, and is due to a number of causes. It is always a symptom, not a disease in itself. It often occurs during a course of short or prolonged fevers, from weakness in the walls of the stomach, and lack of secretion of the proper character—or there may be too much secretion of the wrong kind in the stomach, thus causing a fermentation or changes in the food as a result. Sometimes it is due to inflammation of the stomach. Course of treatment must depend upon the cause; if the latter can be determined, it must be removed.

Biliousness, or indigestion, attended by a course of fevers, can nearly always be avoided by proper diet, and the use of predigested foods, such as beef tea, milk, and broths. For the method of preparing foods for different diseases, the reader is referred to the articles under that head.

In those cases in which the dyspepsia results from imperfect mastication of food, it is evident that careful eating rules are to be given the patient, with the additional advice; which is equally good in all cases, that exact meal hours should be adhered to, since irregularity in eating results in imperfect digestion. If it is found that there is a distress after eating, it indicates that there is a feeble digestion, and remedies to tone up the stomach are indicated, such as the following:

Dilute hydrochloric acid, 1 drachm.
Fluid extract of condurango, ½ ounce.
Compound tincture of cardamom, 3 ounces.
A teaspoonful to be taken after meals, in a wineglassful of water.

℞
Sulph. soda, 1 ounce.
Tartrate of sodium and potassium, 1 ounce.
Infusion cascarilla to make 8 ounces.
Take two (2) tablespoonfuls three times daily.

℞
Dilute nitro-muriatic acid, 1 ounce.
Take 10 drops in half-glass of water before meals.

VERTIGO.

DEFINITION—CAUSES—SYMPTOMS—TREATMENT.

Definition. Vertigo or dizziness is a state in which the individual affected, or the objects about him seem to be in rapid motion, either of a rotary, circular, or a to-and-fro kind.

Causes. The different forms of vertigo depend upon the cause. Vertigo, which may be traced to the eyes, may be caused by eye strain or paralysis of one or more of the muscles of the eye. Another form may be due to diseases of the ear, or what is commonly known as Ménière's disease, which is located in the internal canals of the ear. This disease properly so called, is a sudden, severe, purulent exudation into the internal canals. Vertigo due to some abnormal condition of the stomach is the most frequent variety, and results from either dyspepsia of the stomach or intestines, or disordered liver, or constipation. The method by which vertigo is caused is complex. There are two factors in its production, one is a poisonous effect of some material being retained in the system, which ought to be eliminated, and which accumulates in the blood, and thus passes to the brain; the other is a reflex act, an impression being made on the ends of the nerves, for instance, those which line the stomach, and is reflected back to the brain. Nervous vertigo is associated with migraine, sick and nervous headache, and is caused by physical or mental excesses, also by the immoderate use of tea, coffee, or tobacco, and many other exciting causes as a result of excesses of any kind which disturb digestion and the circulation of the blood.

Symptoms. The attacks of vertigo appear at regular intervals, the individual being comparatively well in the periods between the paroxysms. For a day or two preceding the attack it will be ascertained on close examination, that there was a feeling of fatigue without apparent cause, heaviness over the eyes, with some gas in the stomach, and indigestion. The attack proper is

ushered in by chilliness, nausea, and often vomiting, yawning, and general muscular soreness, with incapability for mental exertion. The patient suffers frequently from pain of a sharp, shooting character of great intensity and persistency, located most frequently either on the back of the head, or on the front; at the same time there is often a tenderness over the whole head. Rarely is the pain felt on the right side, and still more rarely on both sides at the same time. Nausea and vomiting may follow the onset instead of preceding the pain. There is more or less disturbance of the circulation, temperature and secretion of the affected parts. At times there is marked contraction of the vessels, when the face is pale, the eyes shrunken, and the pupils dilated; again the face is flushed, the conjunctives injected, and the pupils are contracted. These symptoms are so characteristic that error seems impossible, although it may be confounded with an anemic headache, hyperemic headache, a dyspeptic or bilious headache, and neuralgia, or rheumatic headache. While a few cases of vertigo are permanently cured, the affection is not very often dangerous to life. In quite a number of cases the attacks grow less frequent as the person advances in years, it being rarely seen after fifty years of age.

Treatment. All forms are generally due to the result of bad nutrition or functional disorder. If due to indigestion, of course remedies must be used to correct this disorder, and the reader is referred to the remedies under that heading. If due to nervous condition, remedies can be used to correct the error in the nervous system. For the latter, the following prescription has been found useful:

Potassium bromide, 4 drachms.
Potassium bicarbonate, 4 drachms.
Water, 3 ounces.

A teaspoonful of this may be taken every three hours. Local applications to the head, of cold and hot water used alternately, or whichever seems to give the most relief, will also be found grateful.

LOCOMOTOR ATAXIA.

Symptoms—Treatment.

This is a disease of the spinal cord. It begins, and may be confined to the posterior columns of the cord, sometimes affecting part of the cord, other times the whole length of the cord, and also of the different columns of the cord. The spinal cord takes on a hardened condition, and the condition may extend to the nerves of the arms and limbs. It is generally divided into three periods: First, disturbances of sensation; second, loss of power to use the limbs properly; third, paralysis.

The onset of the disease is gradual, and with sharp, darting electric-like pains in the lower limbs, with disorders of the gastro-intestinal and genito-urinary tracts; associated with the pains and loss of sensation in the feet, the patient being unable to distinguish between hard and soft substances in walking, and if the upper portions of the spinal cord be affected, is unable to control the muscles of the fingers sufficiently to button his clothing. The sensation of formication over the surface, especially over the lower limbs, and about the waist, the knee, and the ankle; loss of power to control the muscles, the subject being unable to walk upon a straight line with the eyes closed, and with difficulty if the eyes are open; inability to preserve the erect position with the feet closed together; and as the malady progresses, he throws his feet and legs in a most grotesque manner. Although the patient is unable to control the muscles, their power is not lost, for, on being supported, he can kick and strike with his usual force.

The sight is early impaired; either double vision, or inability to distinguish between different colors. As the disease progresses, the sensation becomes more and more blunted and pain is slowly felt, in cases it being several minutes before the sticking of a pin is felt. The characteristic sign of the disease is the abolition of the patella tendon-reflex, as well as other reflexes in the lower limbs.

The electro-contractility is decreased in the affected limb. General emaciation is marked.

Few, if any cases, entirely recover, although progress may be retarded for a long time, and if treated early in the disease, some genuine cures appear to have taken place, but when it passes on into the second stage, the prospects for a cure are very uncertain.

Treatment. Various remedies have been used; various forms of gymnastic exercises have also been utilized. Remedies for relief of pain, which are very annoying and exasperating to the patient, are called for. The following for this purpose is probably one of the best that can be secured, and the dose given should be a tablespoonful night and morning:

Exalgine, 30 grains.
Whisky, ½ ounce.
Simple syrup, 1 ounce.
Water enough to make 4 ounces.

The following prescription is also found beneficial where there are spasms of the muscles of the throat, or any other parts of the body:

Potassium bromide, 2 drachms.
Ammonium bromide, 4 drachms.
Spirits ammonia aromatic, 6 drachms.
Camphor water enough to make 5 ounces.
A dessert spoonful in water every four hours.

PULMONARY CONSUMPTION, OR CONSUMPTION OF THE LUNGS.

The Tubercular Bacillus—Symptoms of Consumption—Treatment—Climatic Treatment.

The air cells of the lungs are the seat of that very interesting disease known as phthisis pulmonalis or tubercular consumption. This terrible disease, like a pale and withering pestilence, is estimated to destroy no less than one hundred thousand human beings every year in the United States alone. But it does not prey upon the poor, uneducated classes only, but it claims its numerous victims among the noblest, most gifted, highly educated and refined classes of society!

In this disease, tubercular deposits are formed in all of the tissues and organs of the body, but more often in the cavities of the air cells of the lungs, filling them full of gray, or yellow cheesy matter, causing short and imperfect respiration. In perfect health the air cells of the lungs are open and empty, like the cells of empty honeycombs, to receive the air every time we breathe, and in this condition the lungs weigh only from one to three ounces. On this account the lungs are often called lights.

THE TUBERCULAR BACILLUS.

It is now generally conceded that the ultimate cause of tuberculosis is the tubercle bacillus, as first determined by Koch in 1882. This is a slender rod, varying in length from $\frac{1}{4}$ to $\frac{1}{2}$ the diameter of a red blood corpuscle; it is straight or curved, occurring singly, in chains or in groups, and is incapable of voluntary motion. When properly stained, it has a peculiar, beaded appearance, and if highly magnified, small bright spots may be seen within the rod, having the appearance of spores. The bacilli are relatively enduring, but grow outside the body under the most careful

regulation of temperature, nutrient media, and other conditions. Tubercle bacilli enter the lungs chiefly through the air passages, being conveyed by particles of dried phthisical sputum or dust.

THE SYMPTOMS OF CONSUMPTION.

The symptoms of ordinary pulmonary consumption are well known to everybody, especially when the disease becomes well advanced—the hawking cough, the progression of emaciation, the expectoration of blood, the purulent sputum from the lungs, the hectic flush of the cheek, and the night sweats of this dreadful disease, are prominent symptoms.

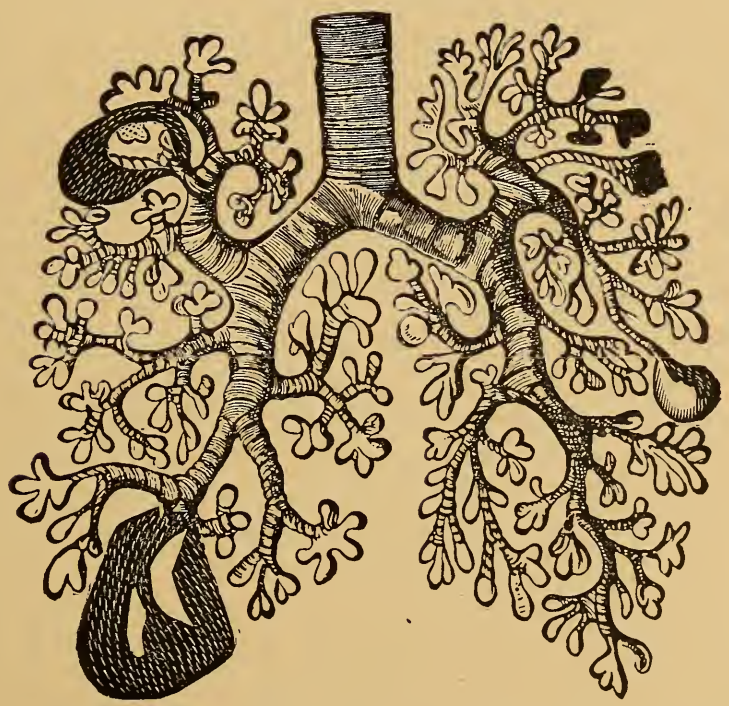

Fig. 16. Trachea, bronchial tubes and air cells, showing tubercular deposits.

TREATMENT.

It must be very evident to everyone who is at all familiar with the cause and conditions existing in this disease, that filling the cavity of the stomach with vile nostrums and compounds will not contribute in any sense toward the cure or even staying the progress of this dread disease. Diet and temperature will do more than

all remedies which are known to the medical profession at the present time.

There is no disease which requires a more careful regulation of the diet than consumption, and the conditions of the stomach and organs of digestion should be as carefully attended to as the condition of the lungs, in order to ascertain just what kind of food agrees best with each individual case of consumption, for it will soon be ascertained that the kind of food which agrees best with one case, will not agree with another.

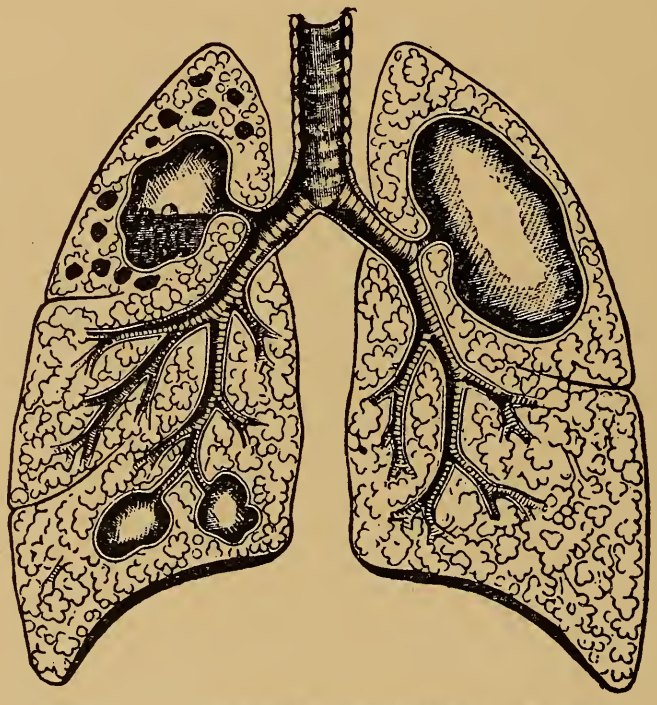

Fig. 17. Showing tubercular disease of the lungs.

Heavy, indigestible foods must be avoided. As a general rule, raw beef, cut in very thin slices, not thicker than a wafer, will digest much quicker than cooked meat. It may be eaten freely three times a day with good coarse, stale, wheat bread, and cream and butter. The diet should be very simple and nourishing, and consist of only one or two kinds of food at a time. The stomach is often injured by eating a great variety of food at the same time. No habit can be more pernicious to the consumptive. Carefully abstain from the use of dried or baked meat. These methods of cooking meat only harden its fibre, and render it more insoluble and indigestible.

Many an unhappy consumptive has perished while trying to digest fried meat soaked in grease. When human beings can eat and digest such food, they do not need to have a doctor—but plenty of wood to chop.

CLIMATIC TREATMENT.

Medical symptoms will be greatly benefited by suitable climatic influences. In the first place, I believe that the patient's chance of recovery will improve from fifty to seventy-five per cent. by residence in a suitable climate; in the second stage, from fifteen to thirty per cent.; in the third stage, a small percentage will be permanently benefited, and in a large proportion of others, life may be considerably prolonged.

There is no place to which consumptives may be sent indiscriminately, but suitable places should be selected for each patient. Some patients feel better in cold weather, but the majority feel better in summer. In the earlier stages warmth is not so important providing there is an abundance of sunshine and dry temperature to be obtained, and for such patients the southerly latitude in winter is most suitable. In this country, the high altitudes of Colorado, Wyoming, Montana and Utah afford a typical climate for those cases, whereas in winter they generally do better in New Mexico, Western Texas and Arizona. Those for whom the high altitude of two or three thousand feet is preferable, will do well in summer in some parts of Dakota, Nebraska, and Minnesota, or in the Adirondacks, or the mountains of Virginia, North Carolina and Tennessee. In winter more suitable climates are found in warmer latitudes, as Tennessee, North Carolina or Georgia. The medicinal treatment must depend upon the condition of the patient and subject of the disease.

The amount of nutrition taken into the system must only be limited by limit of assimilation. Thus agents which will supply to the largest possible extent the waste which is repeatedly going on have been found the most useful remedies to alleviate the cough, and give the patient rest, and will be found among the formulas given for this and other diseases.

CATARRH OF THE RESPIRATORY TRACT, ACUTE AND CHRONIC.

Acute and Chronic Nasal Catarrh—Causes and Symptoms—Treatment, Prescriptions for Internal and External Use.

Diseases of the nasal passages. These include the different forms of catarrh, both acute and chronic. The acute frequently takes the form of a cold in the head. It is an acute catarrhal inflammation of the mucous, or lining membrane of the nose and throat. It generally begins with a fever and a feeling of fulness and discomfort in the head, with a discharge of fluid, watery mucus, and as the disease advances, the discharge takes on a thicker character.

Chronic nasal catarrh is a chronic inflammation of the same parts as the acute, with a more or less alteration of structure accompanied by a sensation of fullness in the nares, also increased secretion, and very often the special senses of smell and hearing become affected.

Causes. Atmospheric changes are the most frequent. Exposure of the neck and head to draft or cold air, or of the feet and ankles to cold and dampness, and change from very warm to cold temperature suddenly, are among the most usual causes, also irritating gases and vapors, dust and powders, exciting an irritation of the nasal mucous membrane. Those inheriting a scrofulous condition or a rheumatic tendency seem to be more liable to frequent attacks. The extension of a catarrhal inflammation frequently occurs passing up the Eustachian tube from the throat to the ear, causing impaired hearing.

Symptoms of chronic form. A feeling of fulness in the nose, increase in secretion, its character being thick and greenish, which, dropping posteriorly into the throat causes paroxysms of

hawking, which are more marked in the morning immediately after rising. The special sense of smell is frequently impaired, and in case of long standing, is entirely abolished; the hearing becomes affected, although to a less extent; the voice also is impaired, and frequently a dull frontal headache exists. The inflammation frequently extends to the nasal duct, thereby causing obstruction to the tears, making them flow over the side of the face, instead of passing down through the natural channel into the nose.

Treatment. Both forms. Prescriptions will be given, together with the method of using them, under the head of "Treatment for the Respiratory Tract."

Tincture aconite root, ½ drachm.
Tincture belladonna, 1 drachm.
Water enough to make 2 ounces.
Take one teaspoonful every three hours at the beginning of cold, for adult.

The following will be found useful as a gargle or spray by an atomizer three times a day for catarrh of nose and throat:

Glyco-thymoline, 2 ounces.

ASTHMA.

Definition—Causes—Treatment.

Definition. The paroxysmal, spasmodic contraction of the muscular layers of the small bronchial tubes, characterized by the spasmodic attacks of distressing, expiratory breathing, continuing for hours, days, and sometimes for weeks.

Causes. In many cases it is clearly a nervous condition, and as a result, the respiratory apparatus is affected. Quite frequently it is hereditary, some members of the family suffering from asthma, others from some nervous trouble. Patients are great sufferers; coming on frequently at night, irritating substances will often provoke a violent attack, as also atmospheric changes.

The paroxysm begins, in the majority of instances, in the early morning hours, or during the afternoon, with a feeling of anguish and constriction in the chest, and an intense desire for air. The breathing is accompanied with loud wheezing; the face is flushed, at times even cyanosed, and bathed in perspiration, the eyes staring, the eyeballs protrude, and the muscles of the neck become prominent as they aid in the effort for air. The difficulty in breathing soon becomes so severe that the inspiration is but a gasp, the lips are pallid, cyanosis deepens, and the patient feels as if death were impending. Owing to the tonic contraction of the smaller bronchi, the air drawn into the bronchial tubes escapes imperfectly, resulting in the difficult expiration.

After some minutes or hours, the respiration becomes easier, the air in the lungs changes, the cyanosis disappears, and gradually the paroxysm ceases, the patient being exhausted and the chest fatigued. The duration of an attack varies from one to many hours, or often days, instead of single attacks. Still, remissions may occur at intervals of one, two, or three hours, and be followed by another attack lasting from four to six hours, continuing for a

week or two, preventing the patient from lying down or taking food.

Asthma, in itself, is not fatal to life, but if the paroxysms are frequently repeated, there results a change in the air cells in the lungs, enlarging them, and rendering respiration very difficult, and if the condition lasts long enough, there are changes in the heart. Indeed, the attack often occurs and complicates diseases of the lungs, of the heart, and also of the kidneys.

Treatment. Asthma generally attacks those of lower vitality, therefore a tonic is indicated. In many cases, nothing but a change of climate will give any relief. For medical treatment, prescriptions will be given which will give temporary relief, and will therefore be very grateful to the patient.

Cigarettes made of paper soaked in nitrate of potassium may be smoked.

Grindelia Rodusta may be given in the dose of 10 to 30 drops of the fluid extract, three times a day.

DISEASES OF THE HEART.

Treatment—Palpitation of the Heart, or Irritable Heart—Definition—Causes—Symptoms — Treatment—Angina Pectoris, or Neuralgia of the Heart—Definition—Causes—Symptoms.

The heart, being the central organ, and the one which is responsible for the circulation of the blood, is a very important organ, and one which may become diseased similar to any other part of the body. The heart, as you will observe by studying the article under the head of physiology, is covered by two membranes. Within these membranes is a fluid. Membranes are supposed to be for the protection of this organ, and the fluid is to lubricate and prevent frictional or grating conditions which are liable to occur, and which do occur when these membranes become diseased. Among the most common affections of this organ and its membranes is inflammation, both acute and chronic, of the pericardium, which is the outside membrane of the heart, and the endocardium, which is the inside membrane. Then again, the heart itself may become diseased from inflammation and other causes. The heart itself may become enlarged from an overgrowth or increase in the muscular walls of the heart. Then again, we have a stretching of the walls of the heart, which interferes with the heart beat, consequently circulation in different parts of the body is more or less interfered with also. Dilatation of the heart is frequently due to overexertion as occurs in the use of violent athletic sports, and it may be caused also from diseases of the lungs and of the kidneys. Then again we have what is known as the fatty condition of the heart, in which the muscular walls are turned into a fatty condition, and as a consequence, the action of the heart is very much weakened, and the breathing is labored and difficult as a result.

This condition of fatty heart often occurs in elderly people, also

in prolonged anemia, chronic gout and alcoholism. Then again, we have a disease of the valves of the heart, which is also very serious, and which needs the closest attention of an experienced physician just as soon as any symptoms of this nature develop.

Treatment. As to treatment of the above conditions, it is im-

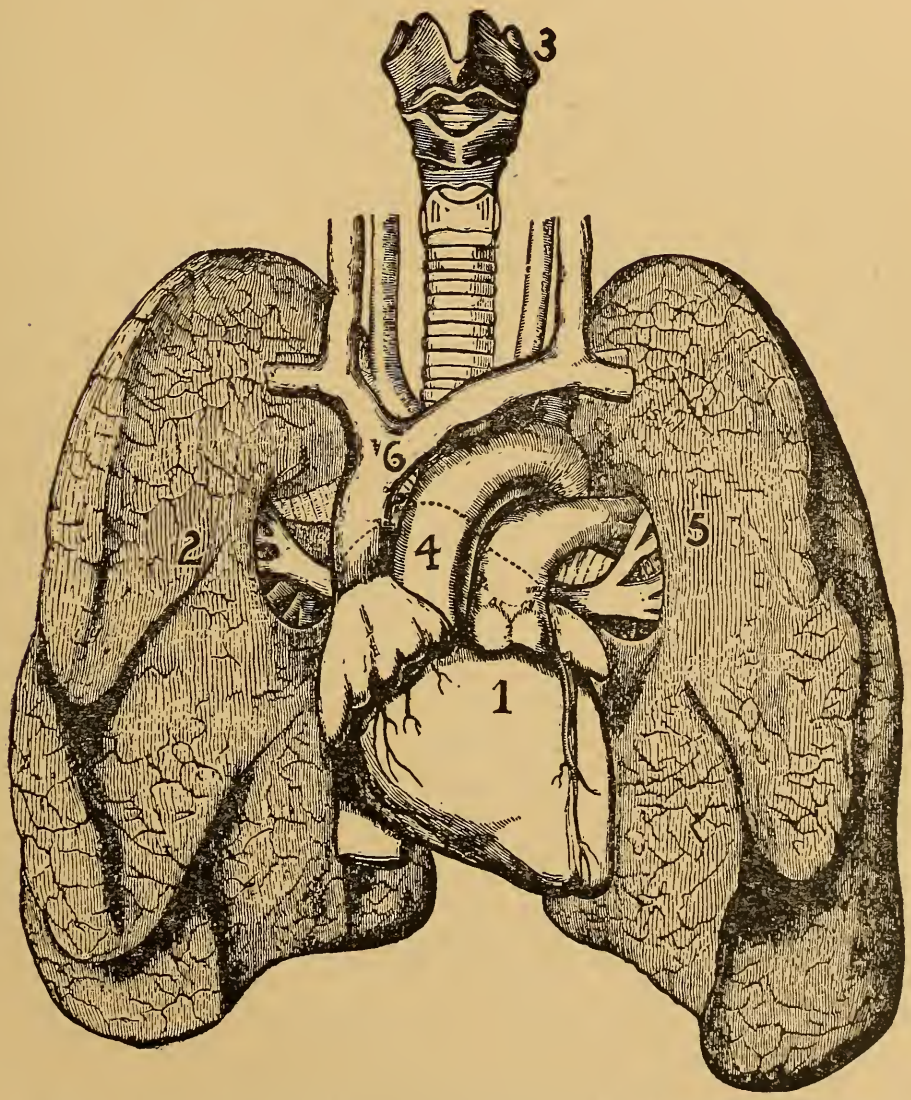

Fig. 18. No. 1, the heart and pulmonary artery; 2 and 5, lungs; 3, larynx; 4, aorta; 6, superior vena cava.

possible to lay down any line of treatment which should be followed, as each case and each condition must be determined at the time and suitable remedies be procured by some one who is capable of doing so, the heart being too important an organ, and one

which must be carefully dealt with. In many of the above conditions, if a remedy were given to accelerate its action, it would seriously aggravate its condition, while, on the other hand, remedies given to impair the action might also have a serious result.

PALPITATION OF THE HEART, OR IRRITABLE HEART.

Definition. Many people suffer from this condition at some period of their life. It is a functional disturbance of the heart, characterized by increasing heart-beat, and frequently some irregularity in the beat also.

Causes. Overexertion, dyspepsia, uterine diseases, excessive use of tea, coffee, tobacco, alcohol, and any form of dissipation are liable to bring on this condition. Intense anxiety and fear will also cause it.

Symptoms. Usually palpitation of the heart is a sudden onset after some one of the causes mentioned, præcordial oppression or pain, rapid, tumultuous beating, the impulse being visible through the patient's clothing; dyspnea, anxiety, and the sense of choking or fulness in the throat, the recumbent position impossible, vertigo, faintness, flashes of light, the pulse full and strong or feeble, the face flushed or pale, the patient having a feeling of anxiety, with a sense of impending danger, and a fear of sudden death. These attacks are paroxysmal, lasting from a few moments to several hours or a day, the patient having a large quantity of limpid urine after the paroxysm has subsided, when there is a strong tendency to sleep.

Treatment. The treatment must depend upon the cause. If the person is run down and anemic, of course the indications are to build up the system; give remedies to make more blood, while on the other hand, if the palpitation is due to dissipation, or excess in eating or drinking of any kind, the indications are to regulate this.

HEART FAILURE OR "BROKEN HEART."

The list of those who die from what is popularly known as "heart failure" is a long one. In almost every disease organic in its nature, and which is severe enough to cause death, when the heart begins to fail and ceases to pulsate the unavoidable result

must follow: the blood, instead of being forced out into the vessels and into all parts of the body, including the lungs, will become cold and then the suffering person experiences shortness of breath and difficulty in breathing. The blood is dammed up in the heart, the heart becomes overloaded, the pulsations become weaker and weaker, slower and slower, until it stops, and this, in very many cases, is the immediate cause of death.

Heart disease from worry and mental strain. There are many suffering extreme agonies from heart disease, induced by a severe mental strain. We find it occurring in four classes of our community; first, the persons engaged in art, science or literature; second, in those who are engaged in political life; third, in those who are occupied in commercial transactions and worrying speculations; fourth, in women who have suffered exhaustion from many diseases peculiar to their sex and marriage relations.

Heart disease due to mental strain is caused by the nerve supply of the heart becoming exhausted, which condition is familiarly known as a "broken heart." This term does not imply an actual rupture or a bursting of the heart, although this extreme accident may happen, and cause immediate death; a case is reported of Philip V., of Spain, who died, according to his historian, upon hearing of the defeat of his army, but this condition is of rare occurrence.

All hearts are not built equally strong to bear physical fatigue. We say of some individuals: "They are lion-hearted," and of others: "They are faint-hearted." Physical courage depends upon the strength of the heart. In entering a school we find invariably two classes of boys: cowards, so-called, who never fight, and another class more valiant, who are always ready to fight, even to death. The nervous boys very often have weak hearts, the valiant boys strong hearts. The first may become, in time, by far the more powerful, intellectually, but the latter are very liable to excel in physical prowess and carry on the industries of the world.

A person suffering from what is commonly known as "broken heart" is in a very deplorable condition; I have known business men who have been moderately successful in business, and have arrived at the age of fifty, but have met business reverses and seen their hard-earned gatherings of all their former life swept away, and have, notwithstanding, made heroic efforts to again establish

themselves; they were unsuccessful; defeat after defeat followed them; anxiety, worry and loss of sleep and continued disappointments wore upon their minds; the heart sympathizes through the nervous system. I recall one particularly sad case, in which pain at intervals over the region of the heart was very acute and resisted all remedies for upwards of a year, when the man died, so far as we could observe, from a "broken heart." Many illustrations could be given of a similar kind, of reverses and disappointments, when the heart sympathized, and in many cases the mental depression was so great that attempts at suicide had been made, and many accomplished the dreadful act.

Symptoms of heart failure. When there is no acute disease to cause failure of the heart the first symptom is an unusual restlessness, coupled with an extreme sensibility and irritability. Success and failure act upon him as one and the same thing, and follow loss of sleep; his business by day follows him through the night, and he may be haunted by dreams. Whenever a man or woman who is actively engaged, dreams regularly of his work, whatever it may be, he or she may receive this as a warning that he is doing too much work, and that the excitement and mental strain of the day is being carried into the night. If this condition continues, the night is passed in feverish restlessness, with a desire for prolonged sleep in the morning, which cannot often be granted, then follows a stage in which dark physical and mental periods succeed, which proclaims the mischief which has been brewing for some time. Along with this sleepless condition his inability to digest a proper amount of food; and meals, which have been probably taken at irregular intervals, and in haste, become objectionable; appetite is capricious, and when food is taken a fulness of the stomach supervenes, and pain, uneasiness and a bloated, distended condition of the stomach and bowels. The person becomes known as a dyspeptic; the heart sympathizes and the beats become irregular, and great anxiety is felt on this account. In some cases the regular circulation is attended with severe spasms of the chest, which is known as neuralgia of the heart or "angina pectoris." This painful experience will come on with slight provocation from worry, fatigue, excitement of passion, and many other depressing emotions.

The above symptoms, whenever they occur, should not be

treated in a trifling manner; if allowed to go unheeded they will, sooner or later, be followed by a serious condition, which the most active treatment will not avail. I knew a case of a man in one of our asylums who had consulted me a few years before; at my first interview with him he told me had borne a great amount of grief, and had been obliged to work as steadily and as constantly as a dray-horse; at that time every organ seemed to be in running order, except his heart; the latter was unsteady in its action and so feeble that it was a wonder to me how he lived. He had little pain, but was moody, fretful and uncertain; one day, some few days after this interview he tried to commit suicide, was stopped in the act and placed under restraint; he has remained so for years, a suicidal maniac, ready at any moment, should the opportunity present, to rid himself of an existence which has become a burden to him.

These cases could be multiplied largely; another case will illustrate a certain condition which exists in our modern civilization, and to a great extent in this country: A man, forty-five years of age, who, by unremitting attention night and day, had amassed a large fortune. He retired from business; he had been feeling ill before retiring and gave this as a reason for giving up his work. Why should he work when he had gained all and more than he wanted, and with no one to care for but himself? So he sold everything, bought a beautiful place out of town, and began the life of a gentleman of leisure; in a few weeks he became dissatisfied, and this ideal way of living, which he had fostered was a delusion. He became ill, fretful, feverish, and depressed; soon existence became a burden; he consulted me; he was a man of as good physique as any one could wish to see, but with a worthless heart. I heard his story and I well knew what was in his mind, and notwithstanding his depressed condition his conversation was very cautious. I recommended what was best under the circumstances: a cheerful companion and travel; the advice was accepted and acted upon, in part. He made every effort and arrangement in pursuit of happier life; but, one morning, he was very much depressed, and, in this condition, he destroyed his own life.

The exact mode of death from over-work is by the destruction of those parts of the body upon which our life depends, for instance, the heart, circulation of the blood, and respiration. The

heart, being the central organ, bears the same relation to the human system as the engine does to the machinery in a large factory. When the central motive power becomes weakened or stopped from any cause whatever, the effect is immediately felt in the remotest part of the machinery dependent upon the central power for its motion; just so with the action of the heart, by its power contained within itself and the nervous system it drives the blood to all organs and parts of the body, and keeps up continual motion, and by so doing fresh blood is being constantly given to the remotest part of the human being, and when, from any cause, such as mental or physical strain, over-work, indigestion, intense grief or anxiety, from any cause, the heart sympathizes and weakens or becomes irregular, so with everything dependent upon it, and consequently the whole system becomes disorganized.

SOME DETAILS OF INJURIES TO THE HEART AND BLOOD-VESSELS.

The disease called "aneurism," is a wearing out of some of the large blood-vessels, generally near the heart. These vessels become enlarged in one place and weakened, and form a little sac or bag at this point of weakness and, as a result, the blood is retarded and this pocket or sac becomes filled, and after a time, it may rupture from pressure or excitement, or the irregular action of the heart may cause immediate death. This condition was formerly noticed to occur frequently among those who rode carriage horses in England. It is said to occur most frequently in those who have to perform daily very active exercise, such as artillery-men, post-men, post-boys.

There is another form of disease of the heart which is due to wearing out or wasting of that organ, also from continued exertion; the exertion may not be violent but it may be continued for a long time, is found among post-men, laborers who perform an ordinary day's work and walk long distances to and fro, and among travelers who walk long distances on foot, blacksmiths and among sportsmen who take active exercise. It must be remembered that the ventricles or walls of the heart have an enormous amount of work to do, when we take into consideration that one ventricle, the left, has to make one hundred thousand strokes in twenty-four hours, and thereby drive over to the lungs eighteen thousand, seven hun-

dred and fifty pounds of blood. It must also be remembered that, during sleep, while every other organ may be inactive the heart must still continue to do service.

INFLUENCE OF PASSION ON THE HEART—EFFECTS OF ANGER.

We say a person may become "red with rage," or we may say he was "white with rage," and by these two terms we express the degrees of comparison and the extent of fury. "Red with rage" means partial paralysis of the small blood-vessels over the surface of the body. "White with rage" means temporary suspension of the circulation. The effect of rage upon the heart is to temporarily prevent its action and the first effect will be noticed in the irregular action.

I once knew a medical gentleman who allowed his temper to become so violent, that at times his friends became alarmed for himself and others; and when the attack was over he experienced very sad hours of sorrow and regret. In the midst of one of these outbreaks of anger he suddenly felt, to use his own words, "as if my heart were lost;" he reeled under the shock, was nauseated and faint, and, after recovering, he put his hand to his wrist and discovered an irregular, intermittent pulse, this was undoubtedly the cause of his faintness. He lived for ten years after but never entirely recovered from that shock and his heart was never free from disease.

EFFECTS OF HATRED.

Hatred, when intense, acts much like anger in the effect it produces. Hatred differs in that it comes on suddenly and is more closely concealed.

EFFECTS OF FEAR.

The effects of fear are almost identical with those of rage, and, like the latter grow in force with repetition. The phenomena are so easily developed in the majority of persons that they can be actually acquired by emotion and are often intensified by the mere narration of events. Illustrations of the effects of fear have come under the observation of almost every one who has had to do with children. Once thoroughly frightened in infancy it is with the

greatest care and caution that the phenomena do not follow even after adolescence. As an illustration of the effects of fear, the following was experienced by a gentleman while returning home from a long sea-voyage, in perfect health and spirits: The vessel in which he was sailing was struck in a collision, was hopelessly injured and began to sink. With the sensation of the sinking of the ship and the obvious danger of death, this gentleman felt his heart stop its beat; he lost consciousness, and the first knowledge he had was when he discovered himself being conveyed out of the sinking ship to the deck of another. When he had recovered partially from the fright he found that the action of his heart was intermittent. On reaching land the intermittency decreased, and after a long course of treatment, the heart gradually returned to its normal condition.

EFFECTS OF GRIEF.

The effects of grief vary often according to the suddenness or slowness with which it is experienced, also as to the constitution and condition, mental and physical, of the person who receives the intelligence. Sudden grief has a powerful influence upon the action of the heart, leading to irregular action and affecting the whole circulation and extending to the nervous system. Many cases are recorded of mental depression which subsequently developed into hopeless cases of insanity as the result of the effects of sudden grief.

TREATMENT OF DISEASES OF THE HEART.

In no disease of the human body is the old adage more strictly true, namely, "an ounce of prevention is worth a pound of cure," than in diseases of the heart. In all cases of heart disease, from whatever cause, rest is of the utmost importance, and must be insisted upon at all hazards, and must be mental as well as physical. The appetite, emotions and passions must be under perfect control. Straining, especially when the hands are above the head, is to be avoided. It is absolutely necessary that the individual suffering from heart disease should understand his exact condition and be governed accordingly, as, for the most part, the treatment is in his own hands. After rest comes next in importance diet; the nutrition

of the body must be sustained, sweets, vegetables and animal fats must be used sparingly; the diet should consist of food which contains the largest elements of nutrition, such as graham and brown bread, eggs, milk, beefsteak, oysters and a moderate amount of stimulants in cases in which there is difficult breathing; in very many cases the latter condition, or want of breath, is due to the weakened condition of the action of the heart; in this class of cases egg-nog will be of value, given at regular intervals. In no case should the stomach be overloaded. If the latter organ is filled with a due amount of black, indigestible food, it is sure to oppress the patient and interfere with the action of the heart, consequently the necessity for a small amount of food in some concentrated form, and taken at regular intervals. The medical treatment of heart diseases is unsatisfactory, there is no medicine known to the medical profession which is, strictly speaking, of curative effect; we have in the tincture of digitalis, in five drop doses, given four times a day, as powerful a tonic to the action of the heart as is found in all medicines; but rest, proper diet and proper control of all the passions, moderate exercise and an abundance of fresh air will do more for the relief and comfort of the person suffering from heart disease than any or all of medicines combined.

ANGINA PECTORIS, OR NEURALGIA OF THE HEART.

Definition. Paroxysms in which there occur sharp, cardiac pains, extending usually into the left shoulder and down the left arm, accompanied by a feeling of contraction of the thorax and a strong sense of impending death.

Causes. Depending upon variety; whether of nervous origin or organic. Often hereditary; associated with chronic cardiac changes, as diseases of the coronary arteries or hardening of the valves; the excessive use of tobacco; according to Trousseau, it is a form of masked epilepsy, and made alternate with true epileptic attacks; often associated with hysteria.

Symptoms. A paroxysmal affection, the attacks occurring irregularly; in the interval, an entire absence of symptoms.

The patient suddenly sits up in his bed and with a cry of horror indicates the sense of pain at the præcordium. This pain is of great intensity, but is of a cold and sickening character; the chest

is fixed; the breathing quickened; and the hand placed over the epigastrium, shows that the heart's action is slight and enfeebled. The face wears a look of horror, pale and slightly leadened; a cold sweat breaks out upon the forehead; worse than the pain is the feeling of fearful sickness and depression. The poor patient gasps, "I shall die—I shall die," and sometimes his short but concentrated sufferings in a few minutes ends in death.

The unpleasant sensations of these patients during the attack, and the nervous disorder associated with it, slowly bring about a mental change. They are depressed and gloomy, sometimes suicidal, often developing epilepsy.

The chief points to be numbered with the attacks are always paroxysmal, and extremely painful, patient having a sense of coldness and frequently a cold sweat. The heart's action is not increased, but the breathing is slow. This condition is one which has caused more or less anxiety, and the services of a physician should be immediately called; the pain of the heart is nearly always an indication of some very serious disease, and no time should be lost in getting all the information and relief possible from the very best authority.

DIABETES AND BRIGHT'S DISEASE.

Varieties—Diet and Treatment.

Diabetes is of two kinds: in one form there is sugar in the urine; and in the other there is a large increase in the amount of urine voided, but no sugar is found. Diabetes is a disease of early adult life; is met with more frequently in males than in females; and in some cases is hereditary. It is a progressive disease, although it has no regular course. In cases where the regulation of the diet reduces the amount of sugar in the urine the fatal termination may be delayed. The disease may last from a few weeks to ten or twelve years.

DIET AND TREATMENT.

The diet is of the first importance; forms of food which contain starch and sugar should not be taken, hence bread, arrow-root, tapioca, sago and such vegetables as potatoes, parsnips, turnips, carrots, beans and peas are to be absolutely avoided. Salads, greens, acid fruits, all kinds of flesh and fowl, eggs, cheese, and butter, unsweetened tea and coffe can be taken. Liquors in any form are harmful; if a stimulant is absolutely needed, a little light sherry or claret wine may be permitted. To allay the intense thirst sour drinks, cracked ice and some alkaline mineral waters may be used in moderate quantities. A meat diet is desirable. A variety is always a necessity. Gluten breads, bran cakes, and biscuits and buns made from almond flour have been devised as substitutes. Some patients cannot eat bread thus made, and in such cases, if bread must be taken, it should be well toasted. Moderate exercise must always be advised, and the skin should be kept thoroughly active by means of warm baths.

Medical remedies are of use, but are of secondary consideration. The remedy probably most used in these cases is opium in some form. In all cases proper regulation of the diet is of the first im-

portance, and the suffering patient will soon learn what agrees with him and so adjust his diet that he will receive the greatest benefit possible.

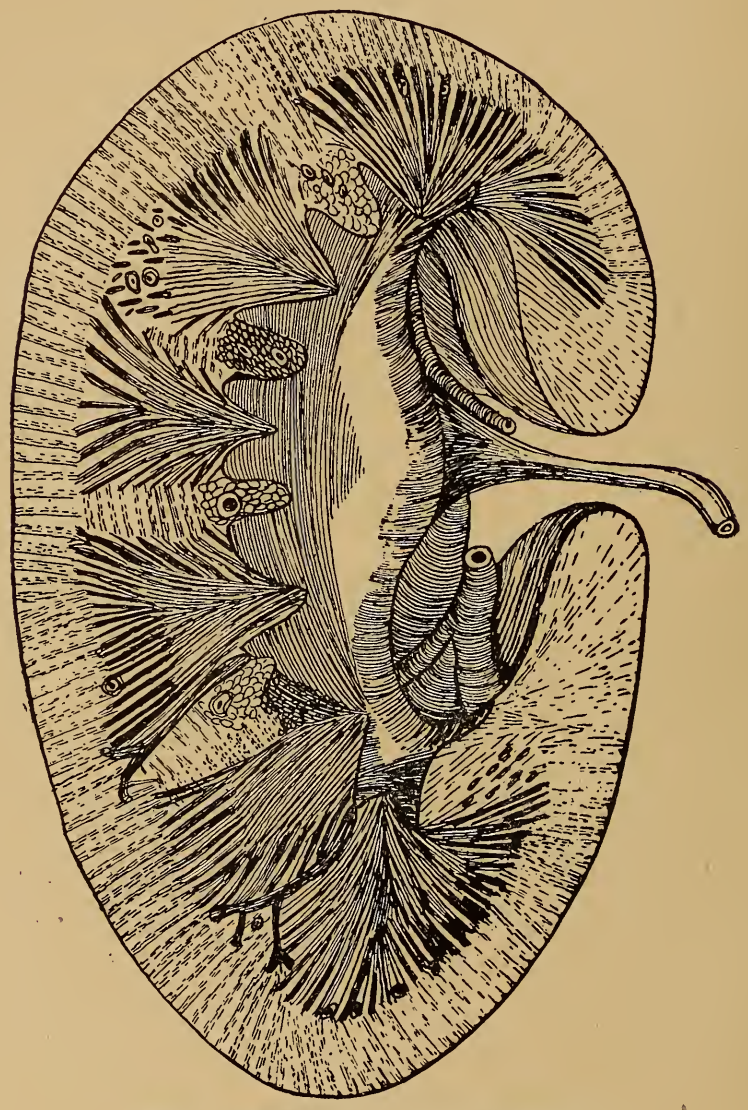

Fig. 19. Cross section of the right kidney.

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Codeine, grs. eight.
Syrup, oz. one.
Water, oz. one.
Take half teaspoonful every four hours.
See other prescriptions for this disease under this head.

BRIGHT'S DISEASE.

There are several diseases which have been called after Dr. Bright, who first called the attention of the profession to this disease in the year 1827, which he showed was of common occurrence,

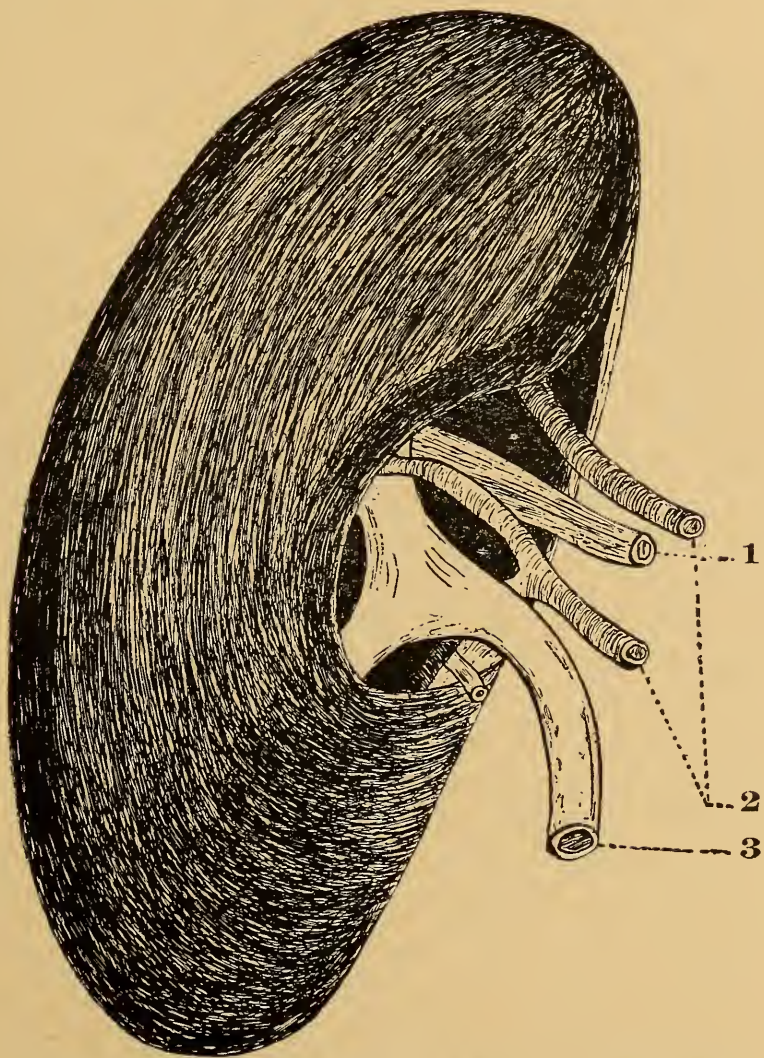

Fig. 20. The right kidney, about natural size. No. 1, renal vein; 2, renal arteries; 3, ureter.

and which was frequently associated with general dropsy. The disease consists of an inflammation of the kidneys, which may be either acute or chronic. It comes on frequently after a sudden exposure to cold.

Among the first symptoms is a slight puffiness about the eyes,

in the morning; if the patient is anemic, the puffiness may appear in the feet and ankles at the same time. It generally increases very rapidly. Towards evening there is a little quickening of the pulse and a slight rise of temperature, together with headache. There may be some pain in the back and loins, also nausea and vomiting. These, in brief, are some of the symptoms which usher in a mild form of Bright's disease.

The urine in all varieties is diminished in quantity, high colored, and sometimes smoky in appearance; it is of high specific gravity; a sediment forms in the urine soon after being voided; albumen is found in the urine.

Dropsy occurs early in the disease. Nervous symptoms are of great importance, and prominent; these symptoms are due to the presence of some irritating poison in the circulation.

TREATMENT.

For the successful management of acute Bright's disease, whatever may have been the exciting cause, the patient must be kept in bed, in a large, well-ventilated apartment, with a temperature of 75° F. Milk should be the only article of diet. Skimmed milk is advocated highly; besides being nourishing, it is a good diuretic. Dry cups should be applied over the kidneys, and the infusion of digitalis should be freely administered. If this plan is systematically carried out from the very commencement, the urine soon becomes copious, the albumen gradually diminishes, and the dropsy passes away. As soon as the flow of urine commences, the administration of digitalis must be discontinued, and diluent drinks are to be given. If the renal secretions be not re-established in twenty-four hours, hot-air baths, hydragogue cathartics or pilocarpine hypodermically in one-eighth or one-tenth grain doses are to be used. For the relief of convulsions or coma, hypodermics of morphine should be given.

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Iodide of sodium, one drachm.
Phosphate of sodium, three drachms.
Chloride of sodium, one ounce.
Water enough to make four ounces.
Take teaspoonful every three hours.

ERYSIPELAS.

Some of the Causes of Erysipelas—Symptoms—Treatment.

This is a disease which, in many cases, is first developed about wounds, cuts or injuries, but it may appear in the human body where no wounds or injuries exist. It is a disease of childhood as well as of adult life, and may attack both sexes. It is classed among the infectious diseases, that is, as we understand the term infectious, the poison from the one affected with erysipelas may be transferred to another directly. If there is an open wound the danger from infection is much increased. This disease presents the same character in children over six months of age as in adults. It may occur in new-born infants.

SOME OF THE CAUSES OF ERYSIPELAS.

General debility, indulgence in strong drink, and living or working in bad hygienic surroundings. Some individuals have frequent attacks of this disease; there seems to be some condition of the atmosphere which affects some individuals. Erysipelas is found more frequently, and is much more dangerous in hospitals. When once developed it is highly contagious and spreads rapidly among surgical patients, and also among women in child-birth.

SYMPTOMS.

These may be both constitutional and local, that is, there may be a fever and increase of pulse together with a reddened condition of the skin, accompanied by severe headache. The temperature runs high and may be two or three degrees lower in the morning and be attended with sweating. The tongue will be coated; loss of appetite; nausea and disturbed bowels. The duration of the fever is varied.

When the inflammation of the surface of the body is localized,

restricted to some part, recovery generally occurs from the fifth to the tenth day; but when it spreads around to different parts, when the conditions are favorable for recovery, the latter does not take place until three weeks.

When erysipelas starts from an injury there will be noticed a diffuse rose or bright red blush around the point of injury, and by pressing the finger and drawing it along the reddened surface a white line will follow the finger. Erysipelas of the face commonly starts from the nose, eyelid or ear and there is more or less redness and swelling which is hot and painful and may involve the whole head and neck to such an extent as to greatly disfigure the patient. There is danger of erysipelas spreading to the brain and causing meningitis. When erysipelas attacks the face and head it is dangerous to old people.

TREATMENT.

The first thing to be done in all cases is the prevention of the extension of this disease, and this can only be done by complete separation of the healthy from the sick. A great many remedies have been used, none of which seem to be specific. There is probably no remedy which has had such extensive use as the old-fashioned tincture of iron, and for children the following prescription:

Tincture chloride of iron, ½ ounce.
Acetic acid diluted, ½ drachm.
Liquor ammonia acetic, 1 drachm.
Simple syrup, ½ ounce.
Water enough to make 3 ounces.

Dose, one-half teaspoonful every three hours for children from five to ten years of age. For a child from one to two years of age, instead of the iron a preparation of cinchona may be prescribed; tincture of cinchona, five drops in simple syrup every four hours. For external application to prevent the extension of the inflammation, there is probably no better remedy than the tincture of iodine, which should be applied from the margin of the inflamed skin to a distance of about two inches over the sound surface. This is not always successful in preventing its spread, but it produces

no unfavorable results. There is often need of soothing applications to the inflamed surface; for this purpose a solution of the sugar of lead is employed. Sugar of lead, 4 drachms; water, one-half pint; apply with a soft cloth or sponge every two hours. Where there is no abrasion of the surface there is nothing better than the following: simple vaseline; or the following:

Glycerine, 1 ounce.
Carbolic acid, 20 drops.
Water, 2 ounces.
This can also be applied every two hours with a soft cloth or sponge.

The strength of the patient must be kept up, and for this purpose beef-tea should be properly prepared and given at intervals of two hours. Milk, in the form of egg-nog, should also be given three times a day. These should be alternated as indications seem to require.

LA GRIPPE OR INFLUENZA.

Cause of La Grippe—Symptoms—Treatment.

This disease is known by both of those names. It is an epidemic accompanied by catarrhal fever; it affects the membranes of the nose, throat and throughout the respiratory tract, also the organs of digestion, and, in the majority of cases, there are profound disturbances of the nervous system. As an epidemic it spreads rapidly over entire continents, and attacks the greater part of the population, irrespective of age or sex, except infants, who are known to be free from the invasion of this disease.

CAUSE OF LA GRIPPE.

It is thought at the present time that the cause of this disease originates in some powerful diseased agent in the atmosphere. It is now well known to be a germ and is contagious, affecting whole families and communities and large sections of countries.

SYMPTOMS OF LA GRIPPE.

It is preceded for twenty-four or forty-eight hours by a general indisposition, in the majority of cases; in some, however, it comes on suddenly, with chilly sensations alternating with flashes of heat and attended by severe headache, pain in back and limbs, constriction of chest and muscular weakness. This is usually followed by a discharge from the nose and the congested appearance of the eye, sore throat, frequent hacking cough, and, in many cases, difficulty of breathing. There are also paroxysms of sneezing and sensations of stuffiness in the head, and, not unfrequently, this congested condition extends to the ears. There is severe headache (this is a common symptom), often great soreness of the muscles, attended, in many cases, by sharp, neuralgic pains; in some cases great despondency and prostration and even delirium, while mental

disturbance is present in many cases. In most epidemics of la grippe there is great restlessness and sleeplessness; the fever rises rapidly to 101° to 102° Fahr., and sometimes as high as 104° or 105°. This disease is not very liable to be mistaken for any other, except a mild attack of bronchitis.

TREATMENT OF LA GRIPPE.

It has been observed that those who are exposed to the outer air suffer most from this affection; it is consequently wise during epidemics, for children and those enfeebled by disease and age to remain as much as possible indoors. As one of the many symptoms of this disease is great nervousness it is good treatment to fortify the nervous system against an attack by tonic doses of quinine and nux vomica in the following composition: sulphate of quinine, two grain capsules every four hours and five drops of the tincture of nux vomica in a little water, to be taken before eating and once at bed-time.

When the attack is well on the following is one of the best remedies, and is used extensively in all epidemics by leading physicians:

Sulphate of quinine, grs. xx.
Phenacetine, grs. xxv.
Capsule No. 2, xv.
M. S. One every three hours.

These, in capsule form for an adult, should be taken every three hours for the first twenty-four or thirty-six hours. If there is considerable fever present, cooling drinks, such as lemonade, after the following formula, are valuable:

Juice of one lemon.
White of one egg.
Sherry wine, three tablespoonfuls.
Water enough to make one glass.
This to be drank as patient requires.

During the first forty-eight hours gentle laxatives should be given. There is probably no better than cascara sagrada compound, from one-half to one drachm, as often as is necessary.

There is nothing better to relieve the pain in the chest than the phenacetine in the above prescription. If there is much pain and tightness over the chest, a local application of turpentine should be made, as turpentine, six ounces and the white of one egg, thoroughly mixed. This can be applied with flannel over the tender parts and, if the flannel is left on, it should remain long enough to cause irritation or redness of the skin, when it can be removed, and, if the pain remains, the same treatment may be used again.

If proper precautions are taken there are generally no serious complications remaining, unless the person affected has suffered from some organic disease heretofore.

Some well-known prescriptions for influenza:

Tincture aconite root, ½ drachm.
Sweet spirits of nitre, 3 drachms.
Citrate of potassium, 3 scruples.
Water enough to make 1 ounce.
One teaspoonful every four hours during first day of attack.

For the cough in first stage:

Tincture benzoin compound, 1 drachm.
Add to one pint of boiling water and inhale the steam.

For the bronchitis in the early stage:

Wine of ipecac, 2 drachms.
Citrate of potassium, 2 drachms.
Syrup wild cherry, 2 ounces.
One teaspoonful every two hours.

For the bronchitis in the later stages:

Chloride of ammonia, 40 grains.
Tincture of cubebs, 1 ounce.
Syrup wild cherry, enough to make 4 ounces.
One tablespoonful every three hours.

For stimulation throughout the attack:

Sulphate of strychnine, 1-40 grain every two hours.

AFFECTIONS OF THE LIVER.

Functional Derangements of—Symptoms—Treatment—Physiology of Digestion.

BRIEF RESUME OF THE AFFECTIONS OF THE LIVER, TOGETHER WITH THE PHYSIOLOGY OF DIGESTION.

The liver is the largest gland in the human body, and it is the seat of some of the most important affections of animal life. It is of a reddish-brown color, measuring about twelve inches in length, six inches wide, and three inches in thickness, and weighs from three to four pounds. It is located high up in the cavity of the abdomen, beneath the lower ribs and the midriff of the right side, and opposite the stomach, which it partly overlaps. It is concerned in the secretion of a thin yellowish fluid, of a bitter taste, and slightly alkaline substance called bile.

The liver is composed of a great multitude of blood-vessels, nerves, absorbents, and bile ducts, all united together by a granular substance, and covered with a thin serous membrane. In one respect the liver is peculiar, and differs from any other organ of the body. It receives two kinds of blood, arterial, red blood, from the hepatic artery, to nourish its substance, and dark venous blood from the portal veins, out of which it secretes the bile. The bile ducts originate in minute branches in the interior of the liver and unite together, emptying into the gall bladder under the liver.

When our food has been reduced by the action of the saliva, the teeth, and the gastric juices, to a soft pulpy consistency resembling flour paste, it is then discharged from the stomach into the duodenum, and when it reaches the mouth of the gall duct, it stimulates the gall bladder to action, causing its fibrous coats to contract and pour out the bile into the duodenum, where it mixes with the food and at once converts its oily, fatty substances into a creamy emulsion fitted to be absorbed into the blood.

It will be observed that the bile is not poured into the stomach, as many people imagine, but into the duodenum, some six or seven inches below the stomach. If this fact, that the bile did not enter the stomach, was generally known by the masses of mankind, what a powerful influence it would have on the price of antibilious physic or mandrake pills, etc. How many unfortunate people have had to take cart-loads of pills and physic to cleanse the bile out of the stomach, when it does not go into it. Not much more than half of the old routine physicians know whether the bile empties into the stomach or the small intestine below the stomach; when their patients eat and drink too much, they are said to be bilious, and they puke and physic them! No bile ever enters the stomach except when the action of the stomach and intestines is reversed, as seen in the act of vomiting.

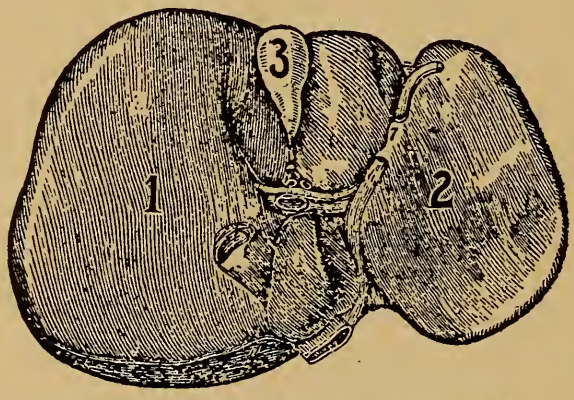

Fig. 21. Nos. 1 and 2, liver; 3, gall bladder.

FUNCTIONAL DERANGEMENTS OF THE LIVER.

The liver, like all other organs in the body, is liable to disease. The action of the liver becomes sluggish very frequently, especially among those who lead an inactive life, or whose business necessitates their being indoors.

SYMPTOMS.

The prominent symptoms which usually attract the patient's attention are loss of appetite, and a bitter taste in the mouth; the tongue is large, pale and flabby, with indentations of the teeth along its edges. The patients who suffer from this form of liver

trouble may become very fat, or they may become the opposite. They complain of drowsiness, inactivity, pain in the limbs often shooting up from the right side of the shoulder. Headache, usually in front, is very common, especially when indiscretions in eating have taken place. Dizziness, dimmed eyesight, and a feeling of mental depression, and irritability of temper may occur in consequence of deranged liver affection.

TREATMENT.

The best treatment is a regulation of the diet and outdoor exercise. All foods containing starch, and sweet substances should be avoided, or taken in small amounts. Wines and liquors should be wholly discarded. Fresh air, sea air especially, and moderate exercise, together with the avoidance of extreme mental work should be recommended. Prescriptions to assist in the relief of this trouble will be found in the latter part of the book under the head of formula.

PHYSIOLOGY OF DIGESTION.

As already shown, the process of digestion is very complicated. It commences in the mouth, where the food is masticated by the teeth, and this is thoroughly mixed with the saliva, and reduced to a soft pulpy mass and fitted to be swallowed into the stomach. The saliva acts as a kind of ferment, converting the starch into sugar, and then changing it to a lactic acid, to aid digestion, after the food is swallowed into the stomach.

When the food reaches the stomach, it acts as a healthy stimulus, increasing the flow of blood into the blood-vessels of the stomach, causing the gastric juices to be secreted in large quantities, which, when brought in contact with the food, attacks its albuminous materials, such as lean meat, eggs, milk, cheese, the gluten of bread, vegetables, etc., and soon reduces them to a fine, pulpy mass, of a gray color, and slightly sour to the sense of taste. The oil, starch, and fat, now being set free by digestion of the delicate membranes of the little cells which contain them, and not being acted upon by the gastric juices, the starch and fat globules are mixed with the digested food, and sent forward through the pyloric valve into the duodenum. When the

food reaches the cavity of the duodenum, it produces a healthy stimulus of the liver and the pancreas, causing these organs to secrete and pour out into the cavity of the duodenum large quantities of bile and pancreatic juice; these fluids being strongly alkaline, at once attract the oils and fat, and quickly convert them into a saponaceous emulsion, while the pancreatin of the pancreatic juice digests the remaining portions of starch, converting them into sugar, so that they may be easily absorbed into the blood. It

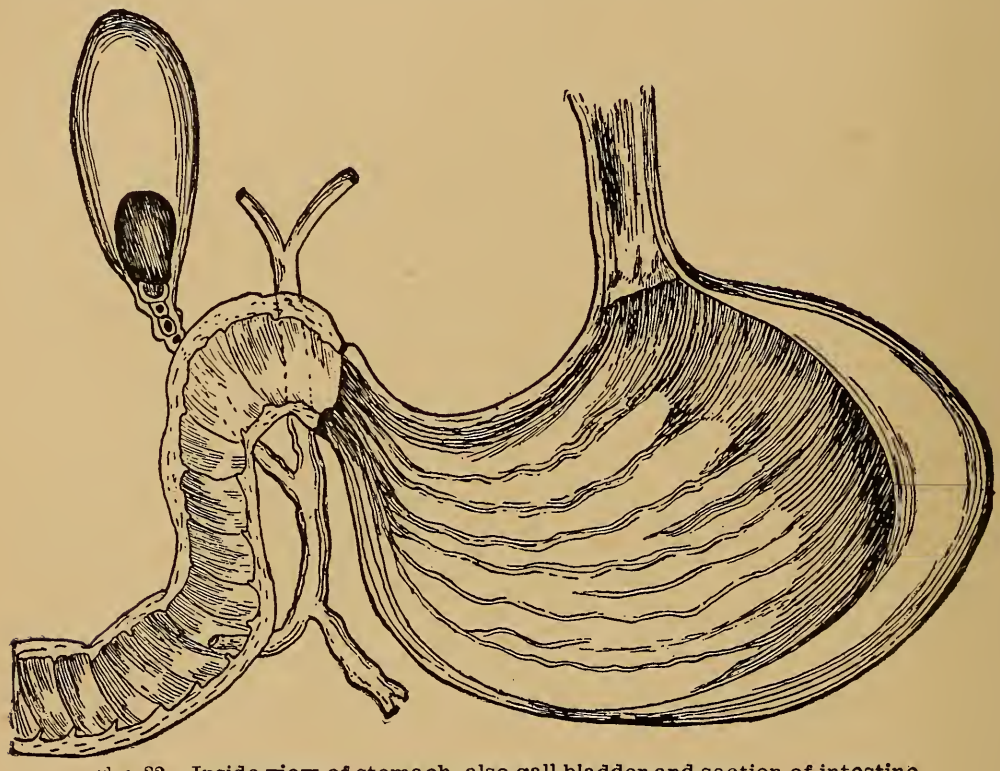

Fig. 22. Inside view of stomach, also gall bladder and section of intestine.

is well known that starch and oils cannot be absorbed into the blood until digested by the action of the bile and pancreatic juice. It will be noticed that the liver is a large and powerful organ, and only second to the stomach in aiding to digest our food.

Starch, oils, and fat, are the last and most difficult to digest of all kinds of food. It is only when brought into contact with these strongly alkaline fluids that they are finally digested, the starch being converted into sugar by the action of the pancreatic juices. Sugar itself, does not require digestion, being capable of absorption without any change into the blood, where it may be found in large quantities.

DISEASES OF WOMEN.

LEUCORRHOEA—OVARIAN TUMORS—IRREGULAR MENSTRUATION—DYSMENORRHOEA—MENORRHAGIA—UTERINE HEMORRHAGES—CESSATION OF MENSTRUATION OR CHANGE OF LIFE.

LEUCORRHOEA.

This condition, vulgarly known as the "whites," is very common among women and is the cause of much weakness and exhaustion. It drains the albumen from the blood, causing premature decay and old age. The condition consists in a hyper-secretion from those glands which pour out their contents into the vagina or the cervical canal of the uterus, or into the cavity of this organ.

The character of the discharge varies in different cases. In some instances it is thick and tenacious, in others so liquid as to trickle down the limbs and greatly soil the clothing.

It is always increased or made worse by exposure to heat and cold, over exercise while standing, walking, etc.

TREATMENT.

A moderate amount of exercise should be taken, preferably in the open air, and late hours and rich foods should be avoided. The diet should be light and nutritious. As a general rule anemia is present, in which case either of the following prescriptions will be of benefit:

Arsenious acid, $\frac{1}{4}$ grain.
Reduced iron, 5 grains.
Sulphate of quinine, 1 scruple.
Make into 20 pills. One pill three times a day, after meals, for an adult. Or,

Tinct. cinchona compound, 2 fluid ounces.
Tinct. gentian compound to make 4 fluid ounces.
Dessertspoonful three times a day after meals.

The remaining treatment consists in injecting astringent washes into the cavity of the vagina. A cheap, astringent injection is made by adding 1 ounce of powdered white-oak bark to each pint of water, or tannic acid and glycerine in the proportion of 1 ounce to 2 quarts of warm water.

Ringer recommends the following:

Bicarbonate of soda, 1 drachm.
Tinct. belladonna, 2fl. drachms.
Water, 1 pint.
Use as a vaginal wash.

Where the discharge is fetid a solution of permanganate of potassium should be used as an injection in the strength of ½ drachm to 1 pint of water.

These injections should be taken frequently, at least once or twice a day, and not less than two quarts of liquid should be used at one time.

A very useful astringent injection may be made as follows:

Sulphate of zinc, 1 fluid drachm.
Sulphate of alum, 1 fluid drachm.
Glycerine, 6 ounces.
A tablespoonful to each quart of water.

OVARIAN TUMORS.

The ovaries, which are situated on each side of the womb, often become enlarged, inflamed and ulcerated, from sympathetic irritation, caused by disease of the neck and cavity of the womb, more especially in women of a strumous or scrofulous constitution. When either or both of the ovaries become inflamed, the disease is called ovaritis. This disease will cause pain, tenderness and soreness inside the edges of the hip bones, in the region of the ovaries, much increased on standing and walking. When the ovaries become enlarged, they may often be detected, by careful examination, while lying down and inclining a little to one

side, by firm pressure of the hand along the region occupied by these organs. At first the ovary may be only slightly enlarged, soft and tender, but when neglected or improperly treated, it is found gradually to increase in size, and becomes hard and shaped like a pear, rolling beneath the ends of the fingers as if it was unattached to the inside of the body. It may be detected sometimes more distinctly than at others. Colds, standing and walking always appear to increase its size and tenderness. These tumors are sometimes firm and solid, but more frequently they are encysted, or divided into numerous cells or cysts, like a piece of honey comb, and filled with a thin brownish colored fluid, about the consistency of honey. These tumors of the ovaries are not cancerous or malignant in their character, and are only injurious to health and destructive to life in consequence of their great size and weight, interfering with the functions of the organs of the cavity of the abdomen, chest and pelvis. They will often weigh from twenty to forty pounds and sometimes are found to weigh much more than that.

These tumors nearly always originate in some disease of the neck or cavity of the womb.

TREATMENT.

It is only at the commencement of this disease that there is any hope of removing ovarian tumors by medical treatment. When the ovaries become irritable, congested or inflamed, with soreness or tenderness on pressure in the regions of these organs, the diet should be light, digestible and nutritious, and the bowels should be kept freely opened, by the use of saline cathartics, such as Rochelle salts, or the citrate of magnesia, taken early in the morning, followed by some good alterative tonic, such as the syrup of iodide of iron, after eating, three times a day.

When the womb becomes inflamed, and its functions are interrupted, the breasts often become irritable, and tender and small, hard scrofulous tumors are formed in them, which can only be removed by removing the disease of the womb which indirectly produced them. The same is true of inflammation of the ovaries. Use a warm, salt, hip bath night and morning, and while in the bath inject some of it freely, with a good vaginal syringe. Rub a

little tincture of belladonna into the skin over the inflamed ovaries night and morning.

When there is any leucorrhœal discharge from the vagina, use washes recommended for leucorrhœa.

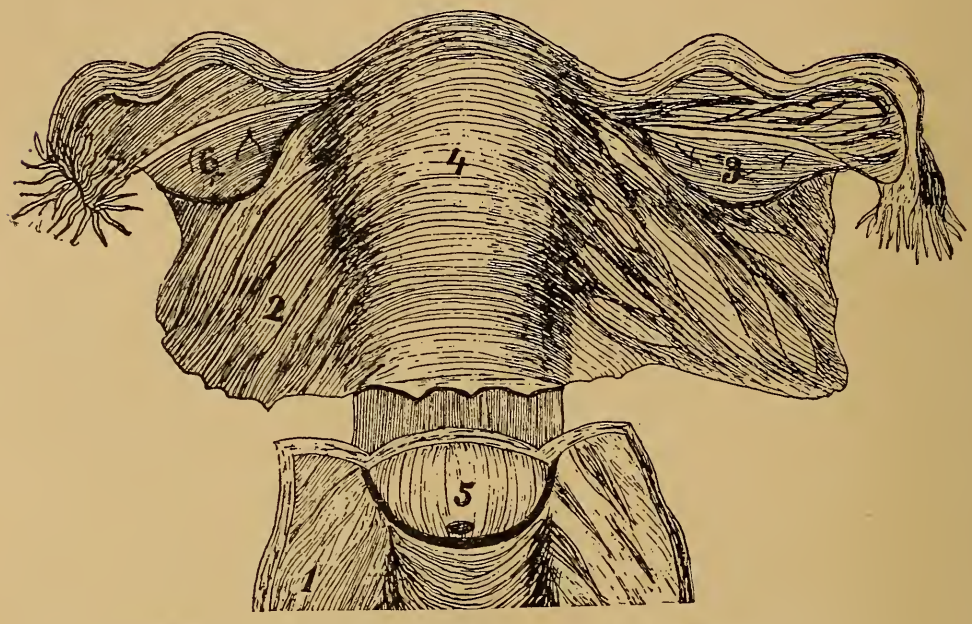

Fig. 23. The womb and its appendages. No. 1, vagina; 2, ligament; 3 and 6, the ovaries; 4, the womb; 5, the opening to the womb.

IRREGULAR MENSTRUATION.

The manifestation of the functions of menstruation in the human female is simply an indication that she has arrived at the period of maturity and that the ova have been formed for the continuation of the human species. The time when this period arrives varies in different countries and climates, and it also depends upon temperament, occupation and employment. In tropical countries and warm climates, the female often matures at seven, and in northern countries and cold climates not before seventeen or eighteen. Females of a sanguine temperament mature earlier than those who are lymphatic.

When the constitution becomes impaired and the blood-making powers are feeble, or the system has been drained and exhausted by disease, or confinement at unhealthy employments, and the blood becomes thin and impoverished, menstruation becomes irregular or ceases.

When the female ceases to menstruate after this function has been established, between the ages of fifteen and forty-five, the disease is called suppressed menstruation, which, if not caused by pregnancy, is to be regarded as the evidence of failing health and to need attention. Cessation of menstruation is often the forerunner of consumption or premature decay.

TREATMENT.

In this disease the attention should be directed to the blood-making powers and the restoration of the powers of nutrition. If the tongue is coated, mouth tastes bad and breath is offensive, an irritable stomach and torpid liver are indicated. This condition must first be remedied and then a good tonic taken with plenty of outdoor exercise.

DYSMENORRHŒA.

Dysmenorrhœa, or painful menstruation, may be produced by different causes. It may depend upon inflammation or disease of the womb, or upon contraction of the mouth and neck of the womb.

When dysmenorrhœa results from the taking of a cold, and is accompanied by uterine congestion and irritability, the following measures are particularly valuable and may do good in cases depending upon other causes:

The patient should take a hot sitz-bath, being well covered while in the tub and then get immediately into bed and be covered by a blanket. A turpentine stupe may then be used, made as follows: A tin containing the turpentine should be placed in a vessel of hot water, that the turpentine may be heated without coming into contact with a flame. Dip a piece of flannel into very hot water and wring it out in a twisted towel, as dry as possible; then dip it into the turpentine and wring again. The cloth should be applied while hot and allowed to remain until it causes discomfort, but not long enough to blister the skin. From five to ten grains of Dover's powder may be administered.

If the attack is accompanied by constipation a dose of Epsom salts is of service.

In neuralgic dysmenorrhœa, which is dependent rather upon nervous disorder accompanying menstruation than upon menstruation itself, measures should be taken to improve the nervous sys-

tem and the nutrition of the patient. These cases generally occur in nervous, anemic women, run down by excessive gayety it may be, or by the bearing and care of a large family of children. A course of strychnine, or quinine and iron in small doses is often beneficial in these cases, with moderate exercise and out-of-door life between the menstrual periods.

When painful menstruation depends upon contraction of the mouth of the womb, it can only be permanently cured by the forcible dilation of its contracted orifice, which must be done by a physician.

(See Prescriptions.)

MENORRHAGIA.

Menorrhagia is an excessive flow of menstrual blood, either excessive in quantity during two or three days, or prolonging itself over an unusual number of days.

When the flow is sufficient to cause decrease of health or to indicate disease, it is necessary for the physician to determine the form of uterine disease which is responsible for the trouble.

Uterine hemorrhages may also be produced by fibrous or polypoid tumors, which must be removed to obtain permanent relief.

Where menstruation is irregular and the hemorrhage is excessive, bromide of potassium in the dose of ten grains once or twice a day is often very serviceable, and the distilled extract of hamamelis in the dose of one drachm, three times a day, is also useful.

When uterine hemorrhages are very profuse and threaten death, while awaiting the doctor's arrival, a small sponge may be wet in vinegar and water and carefully introduced into the vaginal canal. Or in case of an emergency when a sponge is not attainable, a soft linen pocket handkerchief or napkin may be folded, wet in vinegar and water and placed in the cavity of the vagina, where it serves as a tampon or plug and arrests the hemorrhage.

CESSATION OF MENSTRUATION OR CHANGE OF LIFE.

Menstruation usually commences at the average age of fifteen, in this country and climate, and continues to the average of forty-five, when it begins to decline, becomes irregular and finally dis-

appears permanently. The womb has now attained the object of its creation and at once begins to decrease in size, and in old age it is no larger than that of an infant.

At this critical age many diseases peculiar to women cure themselves. When the womb becomes atrophied from old age, it is no longer prolapsed, as it is often earlier in life. This period of the life of woman is called critical, because while old diseases may disappear, new ones are liable to appear.

Previous to the age of forty-five or thereabouts, her system has been drained by the loss of from four to six ounces of menstrual fluid every twenty-eight days, which has served to reduce the force of her circulation and impair her strength. At this period this drainage ceases, and from this time forward all of her blood is retained in her system and rapidly increases in quantity and improves in quality. In consequence, there is a tendency to increase in flesh at this period, if the woman is in good health. The waist enlarges and the weight of the body rapidly increases.

The dangers of this period depend upon the rapid increase and accumulation of blood, and should be averted by great care in regard to the diet and other habits of life. The diet should be light, simple and easily digested, consisting of cooked fruit and vegetables, with bread and meat once a day. Carefully avoid all stimulants, and highly seasoned food, wine, beer, coffee, etc.

As a means of preventing and relieving dangerous engorgements of the liver, lungs, heart and brain, and the tendency to congestion of the lungs and brain, causing fits, convulsions, apoplexy, etc., keep the bowels freely open by the use of cooked fruits, whole wheat bread, and if necessary a gentle cathartic.

It is also desirable at this critical period of life to avoid all excitement of the passions and feelings.

Fits, convulsions, apoplexy, palsy, etc., may be induced by strong mental excitement. At no period during the life of any woman is forbearance, sympathy and kindness so essential as it is at this turning point in her existence. If she passes happily through this crisis, she may look forward with confidence to a happy old age, freed from many of the liabilities and diseases incident to her earlier life.

DRUNKENNESS.

THE SCIENTIFIC SIDE OF DRUNKENNESS, THE KEELEY AND WITHEREL CURE—DIET—DR. J. D. CROTHERS OF AMERICA AND DR. NORMAN KERR OF ENGLAND ON TREATMENT—PRESCRIPTIONS FOR SAME AND HOW TO USE THEM—DURATION OF LIFE OF DRUNKARD.

There is an impression abroad that quite a large percentage of drunkards are born as such, but close investigation has shown that the drunkard is made in the majority of cases. He learns to drink as he learns to walk, by voluntary action. Some learn quicker than others, the same as learning to do any voluntary acts. Few men or women become drunkards in less than two or three years of practice. Exceptional cases learn the habit in one year. Drunkenness becomes a disease, and as such, it should be studied. Drunkenness is the changing of a mental state caused by drinking too much alcoholic liquor. That alcohol will change one's mental state, in fact his whole mental condition, is well known to every drunkard. In many cases they take to drink to drown their sorrow or smother their troubles. They know by experience that liquor will cause them to cease thinking of their sorrow and troubles, and to think of something else, and so long as they think about the latter, they cannot think about the former. The drunkard is practically cured of drunkenness when he stops drinking, but he is not cured of alcoholism. Every drunkard can be cured who wants to be, that is, who has a longing, persistent desire to be cured, but it is utterly impossible to cure one who has not such a desire. Consequently, the first essential factor in the cure of any habitual drunkard is to have his or her consent; he must be honest in this particular. Such a one is what may be termed a normal drunkard, because his condition is curable. If the drunkard is not a normal one, then he must become so before his treatment will

be successful. If you succeed in stopping him from drink against his will, a relapse will surely follow in a very short time.

TREATMENT.

There is no profound secret about a Keeley, or any other cure for drunkenness. For convenience, it is divided into five parts. (1) The hypodermic injection or "shot;" (2) the tonic; (3) the diet; (4) whisky; (5) the "knock-out-shot."

Regarding (1) the hypodermic or "shot," two injection solutions are used, which for convenience we will call (1) A and (1) B, the formulas being as follows:

(1) A.

Atropine sulphate, $\frac{1}{4}$ grain.
Strychnine nitrate, 1 grain.
Distilled water, 1 ounce.
Cochineal, sufficient to color a rose pink.
Dose, 2 to 20 minims, three times a day.
The average hypodermic injection being 10 drops.

(1) B.

Strychnine nitrate, 1 grain.
Distilled water, 1 ounce.
Dose, 5 to 15 minims, three times a day.

The tonic (2), which we will call C, is as follows:

Fluid extract golden seal (standardized), 2 drachms.
Ammonium chloride, 30 grains.
Distilled water, q. s. to 2 ounces.
Dose, a teaspoonful every two hours while awake.

The diet (3). For the first six days of treatment the diet should consist mostly of Horlick's malted milk. The patient should take two teaspoonfuls of it in half a glass of water, "well salted," every two hours while awake. He should take it as a medicine. He may eat anything else, but insist on the malted milk being taken on time.

The whisky (4). The following should be faithfully carried out:

(a) The patient should furnish his own whisky, and carry it with him in a half-pint bottle.

(b) He should drink only as much as is necessary to keep him fairly well braced up—not enough to make him drunk.

(c) He should go to no place where liquor is kept on sale, and should drink no alcoholic liquor except from the bottle he carries with him.

"The knock-out." This consists of a hypodermic tablet of apomorphine, gr. 1-10, dissolved in 20 minims of (1) water. Of this solution inject hypodermically fifteen minims. The object of the "knock-out" is to make the patient sick, when he will of his own volition stop drinking on the fourth day of the treatment.

A few brief suggestions will now be made on the practice and principles of the treatment:

Any physician can treat drunkenness just as successfully as the writer or Keeley, provided he understands the principles involved, which are quite simple.

In the treatment of drunkards the two sides of human nature (a) the mental and (b) the physical, must be kept in view.

Let a person drink one or two ounces of whisky; in a short time he will experience a change in his mental state; he will feel exhilarated and quite a high degree of exaltation, but his physical state will not be apparently changed. Should he take a few more drinks he would soon feel quite a marked change in his mental state. The first effects of whisky then are mental, later physical.

In the cure of drunkards the cure is directed to the mental state of the patient. We have nothing to do with him physically except as certain temporary, physical conditions may influence him mentally and these, of course, we try to counteract.

It may seem strange, but nevertheless it is a fact, that when all of the different successful methods for the cure of drunkenness, as the Witherel, Keeley, the purge method, the bromide method, the various treatments in sanitariums, etc., are all analyzed scientifically and boiled down, the residuum is the same—it is all mental. And this is also true when the drunkard is cured by means of the pledge, or by prayer, or by religion, or when he cures himself.

Any drunkard, periodic or continuous, who earnestly and honestly desires treatment, is three-fourths cured before he gets his first injection.

The success of the remaining fourth is entirely dependent upon how thoroughly you can impress the patient or make him believe the medicines you use will surely cure him. They are simply the means you use to plant the suggestion of cure. A suggestion can be planted consciously only directly; that is, through some medicine; and the injecting solutions are the medium.

Regarding his treatment the patient is in a complex mental state, composed of three principal elements: (a) He is anxious to be cured. (b) He believes that the medicines will cure him. (c) He expects to be cured. As physician, you keep these three states active, but play principally on the medicines, and make them the medium by which you change the current of thought, or bring about a mental reaction from thinking of whisky to not thinking of it.

Dr. T. D. Crothers, of America, and Dr. Norman Kerr, of England, both eminent specialists in the treatment of alcoholism, having both spent a lifetime in the work, speak highly of the Turkish bath, especially in beginning the treatment. Rochelle salts with bitartrate of potassium every two hours, is also highly recommended. When the patient suffers from indigestion and loss of appetite, the following will be found useful:

Infusion of columbo, 2 ounces.
Aromatic spirits of ammonia, 3 drachms.
Co. tinct. of cardamon, 4 drachms.
Distilled water, 3 ounces.
A teaspoonful in a wine glass full of water every three hours.

If there is extreme nervousness and inability to sleep, the following will be found useful:

Potassium bromide, 3 drachms.
Hydrate of chloral, 2 drachms.
Peppermint water, enough to make three ounces.
Dose—A teaspoonful in a wine glass full of water every four hours, or as often as seems necessary, and the condition of the patient warrants.

The prescriptions should all be given, so far as possible, under the advice of a physician. Tonic should be given for quite a long time after the individual has stopped taking any liquor, or has any craving for it. The poison which is in the system must be gotten rid of, and while nature is doing this, and after it is done, the nervous system needs building up. And for a remedy to take for several weeks, or even months, the following has been found useful, by Kerr:

Tinct. nux vomica, 2 drachms.
Dilute nitric acid, 2 drachms.
Solution taraxacum, 1 ounce.
Tinct. cardamon, 2 drachms.
Water enough to make three ounces.

A teaspoonful dose should be taken four times a day, before eating, and before going to bed.

DURATION OF LIFE OF DRUNKARD.

Investigation has shown that the average duration for men of the drinking habit was about fifteen years. Among periodical drunkards, the average duration was about nineteen years. In general, it may be concluded that hard drinking can rarely be carried on for more than twenty years, and it generally ends the life of the person at the age of about forty years.

THE USE OF TOBACCO.

How it Affects the Blood and Alimentary Canal, and the Nervous System—Effects of Smoking and Chewing—Some Clinical Examples of the Effects of the Use of Tobacco—Cigarette Smoking—Effect on Boys—Nicotine the Most Deadly Poison.

SOME REMARKS ON THE USE OF TOBACCO.

The use of tobacco, when first introduced into the civilized countries, met with much opposition. Popes and kings attempted to interdict it, and as late as the seventeenth century, it was prohibited by law in Turkey and Persia, where now its use is almost universal. Even at the present time, there is a wide difference of view as to the effects of its constant use. Some see no limits to its ill-effects, while others believe that it does very little harm whatever. But such extreme views are held by extremists only. While the conservative observer recognizes the well-known fact that tobacco may be and often is the cause of a disease, and it is very commonly recognized as being the source of harm, the habit is so universal that we forget or overlook that which is so constantly before our eyes. I will briefly mention a few cases recently in my observation, to emphasize the truth of this statement.

The first, a man of forty-five years of age, had been suffering for a long time from attacks of vertigo, unsteadiness of gait, and other nervous symptoms. He had been treated for months by a physician of high repute and large experience, who had wavered much in his opinion, but finally diagnosed grave, organic trouble. The patient had been addicted to excessive smoking. I ordered him to discontinue this altogether, and he was soon in comparative health.

The second case was a man of fifty years who had suffered periodically since he was fifteen years of age with various nervous

symptoms; twitchings of the muscles of the face, want of sleep, and digestive disturbances were very prominent. These symptoms were persistent, remaining a year at a time. He had been a moderate smoker since boyhood. Upon consulting me, I prohibited smoking, and the above train of symptoms disappeared immediately. These two cases are but typical of many more which could be enumerated, and which are frequently seen in the practice of every physician.

Tobacco, taken internally, is one of the most deadly poisons; nicotine, the active principle in tobacco, will kill very rapidly. According to experiments on animals, and observations on man, it directly affects the central nervous system, the brain, and the spinal cord, as well as the smaller nerves.

The blood also is affected. It poisons the red and white corpuscles, and destroys the coloring matter of the blood. It also affects the alimentary canal, the salivary glands, and the kidneys.

In studying the injurious effects of tobacco on the nervous system, we have found that smoking chiefly affects the nervous system, while chewing more frequently affects the digestive system. The poison in tobacco is not so strong in pipes as it is in cigarettes or cigars. The chief injury of cigarettes is from the fact that they are smoked so much by the young, and perhaps that they also lead to excessive smoking. The amount of nicotine in tobacco varies from two to eight per cent. Good Havana has two per cent. and is therefore the best. Most individuals acquire a tolerance for the use of tobacco, and continue to use it without apparent harm. Those of a neurotic temperament are likely to suffer most readily. It appears also that those who lead a sedentary life, or are much in a smoke-laden atmosphere, or are accustomed to inhale the smoke, are more affected than those in the open air who do not inhale the smoke into their lungs. Tobacco is especially deleterious to the young. It often seriously impairs the general health, as well as causes nervous diseases.

CIGARETTE SMOKING.

This form of smoking possesses all the injurious qualities common to all other forms of the tobacco habit, with the addition of a powerful irritant poison, an empyreumatic oil, also generated by

the burning of pepper. It seems to be overlooked by most observers that tobacco is rich in nitrate of potash, which greatly assists the process of combustion in smoking, and is converted to oxide of potash, the caustic properties of which are visible in the mouths and throats of all smokers—the empyreumatic oil and the nicotine, pyridine, and caustic potash, are present in all cigarette smoke; and as the tobacco used for cigarettes is somewhat milder than is used for cigars, the habitués are constantly inhaling the smoke in large volumes, which more than compensates for the lack of the high percentage of the nicotine in the tobacco.

It is the unanimous opinion of teachers that boys who smoke cigarettes cannot concentrate their minds, and at once show deficiencies in their capabilities in learning arithmetic and grammar. No boy who smokes cigarettes before the age of ten years will ever learn to spell correctly; failing memory, nervous excitement, physical debility and muscular tremor, are to be noted among the earlier manifestations of the cigarette habit in boys.

The late Prof. James T. Whittaker, in his work on the practice of medicine, speaking of nicotine, designates it as one of the most dangerous poisons, ranking next in virulence to hydrocyanic acid. The effects of the cigarette habit upon boys are now attracting the attention of the philanthropists and scientific men all over the world; so much so, that according to Prof. Willis Brown of Toronto, there were in 1900, 2,193,390 less cigarettes made than in the previous year. Within the past six months more than 100,000 people in the United States have pledged themselves to oppose the cigarette habit in every manner. Twenty-six states have enacted laws against it, and, if the medical profession does its duty, the time will soon come when the terrible, degrading and disagreeable habit of smoking and chewing tobacco, in any form, will be extremely rare among respectable and intelligent people.

The treatment of all forms of the use of tobacco is entire abstinence. The mere lessening of the amount used ends in entire failure. There are few but that can relinquish its use, and an experience extending over many years in the treatment of all forms of drug and alcoholic habits warrants me in advising the abandoning of its use entirely, where there is any doubt as to its causing any serious results.

INSANITY.

SERIOUSNESS OF THE DISEASE—SOME COMMON SYMPTOMS—DIFFICULTY AND NECESSITY FOR EARLY DIAGNOSIS AND TREATMENT—CURABILITY OF A LARGE PER CENT. OF CASES IF SEEN EARLY, AND PROPER TREATMENT GIVEN—INSTITUTIONAL VERSUS HOME CARE AND TREATMENT—THE FUTURE OF CASES OR PROGNOSIS—VARIETY OF FORMS AND SYMPTOMS

RECOGNITION AND CARE OF THOSE MENTALLY AFFLICTED.

The care and treatment of our insane is a question which ought to interest every physician and taxpayer in the state. We have, in round numbers, in the various asylums and institutions where the insane are cared for, about five thousand persons, necessitating an outlay of about five million dollars and an annual expense of about one million five hundred thousand dollars for care and treatment. Not only is the question one of interest from an economical standpoint, but it is of the utmost interest sociologically. Insanity, in some form, permeates all classes of society; no one can claim exemption. No disease is so far-reaching in its effects nor involves a wider range of interest regarding individuals, families, and even communities. For the individual, social and business relations are at once seriously involved; for the family, the dearest ties on earth are disturbed; in many instances there is personal danger, and it may be, the removal of the head of the family to the care of strangers, with the consequent loss of income and necessary expense, and, unfortunately, the stigma wrongfully attached to persons, and even families, known to be tainted with mental disease. However, whether treatment be administered, at home or in a public or private institution, there is involved an expenditure of a large amount of public or private funds.

There is, perhaps, no disease which. when it attacks any mem-

ber of a family, creates so profound an impression. Take, for instance, the mother with child, it may be her first or it may be her sixth; the child is born, and the physician and friends are looking forward to a speedy and happy recovery, when, like a thunderbolt from a clear sky, the friends' joy is turned into intense anxiety, the resources of the physician are taxed to the utmost.

In this hour of sorrow, the family look to the physician for counsel and advice.

SYMPTOMS.

A week or ten days after parturition, the patient's face becomes pale and careworn in appearance; the eyes unnatural in lustre; skin moist, tongue coated, breath offensive, lochia suppressed, temperature high; patient becomes restless, attempts to jump out of bed or window; conversation incoherent. These are a few of the premonitory symptoms which call for prompt recognition by attending physician. I recall two cases which came under my care for treatment. One patient was not considered in serious condition until, by accident, her husband found that she had secreted a large butcher knife under her pillow. When questioned, she acknowledged her intention of killing both husband and child after they had gone to sleep. The other case was that of a woman who contemplated roasting her infant in the oven, but vigilance prevented.

DIFFICULTY AND NECESSITY FOR EARLY DIAGNOSIS.

We have come to look upon insanity as a disturbance of the intellectual areas of the brain, manifested by partial or complete derangement of the mental faculties, a derangement manifesting itself in methods of thinking, feeling, and acting, which are unusual to the individual when in mental health. There is no common standard of sanity, by which mental aberration can be judged, because no two individuals act and think alike. No individual can be called insane because he differs mentally from others. Every individual has his own standard of mental action, and can be considered insane only when he departs from his own standard, when normal mental action is supplanted by abnormal mental action, or when, in common parlance, he is "off his base."

Insanity may be considered a relative condition. We must com-

Fig. 24. View showing the nervous system.

pare the condition in which we find the individual at the time of examination, his conduct, manner, and speech, also the organs of the body, including the eyes, tongue, skin, circulation, appetite, bowels, sleep, motion and sensation, with his normal mental and physical state, as shown by his former habits, temperament, environments, etc. A nervous, excitable temperament may from slight cause become exalted or depressed, which up to a certain degree would be within the normal physiologic range in that individual, while such manifestations occurring in another individual of entirely different temperament, might justly stamp him as insane. Thus two individuals may manifest similar mental symptoms, and one be considered of sound mind, while the other may very properly be considered insane. It is when mental activity goes beyond the physiologic limits and the individual passes into a psychopathic state, that he may be regarded as insane. It is often very difficult to say where health ends and disease begins; the onset, if gradual, may extend for months and even years, before the lines between sanity and insanity are well defined.

NECESSITY FOR EARLY TREATMENT.

For obvious reasons, when a member of a family becomes afflicted with insanity, in many instances, the immediate friends fail to recognize the full import of the situation, to the detriment of patient, and not until the disease is well advanced are proper steps taken for care and treatment. This lethargy or indifference is not practised in relation to other diseases; then, the physician is at once consulted, but when mental aberration occurs there is a disposition, it may be for social or other reasons, to cover up the actual conditions. It is not a little gratifying, however, to know that a large amount of the prejudice which has heretofore existed, in relation to insanity, is fast passing away, and it is now looked upon more as other diseases. When the friends, the public and the medical profession look upon mental disease in the same light as pathological conditions in other parts of the organism, amenable to the same laws of cause and effect, then, and not until then, will mental disease receive the early recognition which its importance merits.

Too often the specialist does not see the case until the symptoms

are well developed. The friends of the patient fail to comprehend the gravity of the situation, or realizing it, are unable to decide what course to pursue. I have little doubt but that many of the chronic insane now public charges, and forever lost to their friends, could have been restored to health had the early symptoms or danger signals been recognized and treated. Fortunately the immediate danger of death as well as the hope of recovery can

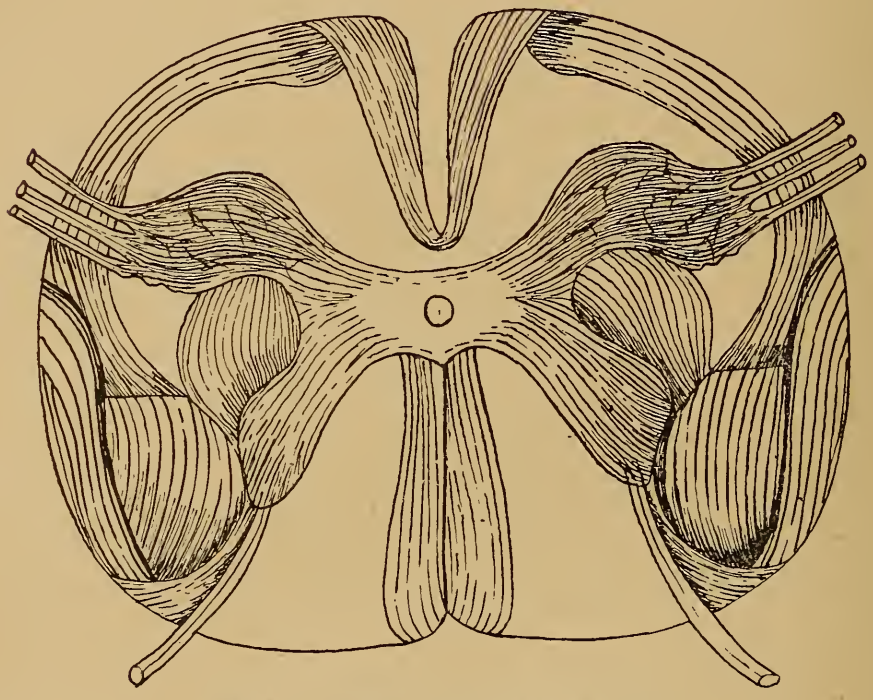

Fig. 25. Cross section of the spinal cord.

generally be decided during the first year. If actively and skilfully treated within the first month, 70 per cent. of those attacked may be cured, but if not treated until the sixth month of the disease only 50 per cent. can be cured, and for each subsequent month the ability diminishes. After the first year not more than 10 per cent. recover, and after the second year and until the twentieth year of the insanity an exceptional recovery may occur. Practically, however, insanity may be regarded as having little hope of recovery after the first year. Seventy-five per cent. of cures in hospitals for the insane occur within eight months from the date of admission of the patients.

If there was one lesson more than another indelibly stamped

upon my mind by institutional experience, it is the fact that the curability of insanity largely depends upon its early recognition. The longer the delay, the less the chance of recovery. The great pathological law which obtains in most diseases has greater significance when applied to insanity.

Institutional versus home cure and treatment. This is a question of great importance, and intelligent conception of the nature and diagnosis of the disease is necessary in order to give valuable advice on the subject. The future welfare, and possibly cure, of the patient, will depend upon the proper solution of this problem. If possible, it may be better for the patient if treatment can be carried out at home, on account of the popular stigma of insanity and loss of standing of those who have been inmates of hospitals for the insane. The fact that the patient did not have to go to an asylum favors the impression that the trouble was not serious, and the popular prejudice towards one upon whom the official seal of insanity has been stamped by commitment to an institution for the insane, is largely avoided. But, while guarding the interest of patient against this popular feeling, the physician has other considerations that must influence him in his decision. For instance, the influence of home treatment upon members of patient's family. It is a duty to suffer inconvenience, and even hardships, in behalf of sick members of the family; the obligations are the same when insanity occurs, although there is a limit to moral obligations, and that limit is reached when the head of the family is jeopardized. The financial consideration often settles the question. The expense of home treatment is greater unless there are members of the family suitable for nurses. Except in very mild cases, one is required for the day and another for the night, and a suitable room must be provided with doors and windows properly secured.

Prognosis. The questions will be asked the physician: Will the patient survive the attack? How long before the cure is complete? If cured, is there likely to be a recurrence of the attack? And what will be the state of the patient, will he be able to attend to business? Will he be well enough to live at home? To be able to answer these questions requires extensive experience in mental disorders. The prognosis in mental disease at the onset is difficult to foretell. It is well to bear in mind that the unexpected often happens. A patient may be maniacal today, as in mania transitoria,

and in a week or a month be clothed in his right mind. A common mode of termination is partial recovery with general weakness of mental faculties remaining. Probably about one case in four will terminate in this way. Our state institutions contain a large percentage of this class, they form what is known as the "working gang." The rate of recovery diminishes with age and is slightly more favorable among women than among men. It averages from thirty per cent. to forty per cent., calculated on admissions in hospitals for the insane in the United States. By striking an average as regards age, sex and form of mental disease, the following estimate is considered as very nearly the average result to be expected in mental disorders: of one hundred persons attacked for the first time by insanity, seventy will eventually die insane; thirty will recover and die sane; twenty will recover but will relapse and will be among the seventy to die insane; fifty will not recover at all. The hope of recovery diminishes with each successive attack. The majority of first recoveries even leave a slight impairment of the intellect. It has been estimated that the average life of the insane is about twelve years.

SOME GENERAL CONSIDERATIONS CONCERNING THE GERM THEORY IN RELATION TO THE CAUSATION OF DISEASES.

Brief Historical Sketch—What Are Bacteria?—The Rapidity of Formation—Distribution of Bacteria—Agencies Destructive to Bacterial Life—Conditions Necessary for Growth—Infection—Infectious Principles—Sources of Infection—Transmission—Where Bacteria are to be Found—Infection of Wounds—The Necessity for Personal Cleanliness.

SOME GENERAL CONSIDERATIONS CONCERNING THE GERM THEORY, IN RELATION TO THE CAUSATION OF DISEASES.

Brief historical sketch. The study of the germ theory, or what is commonly known as bacteriology, is said to have its beginning in the seventeenth century. Previous to this time, such changes as decomposition and fermentation, processes which are familiar to everyone, were supposed to originate spontaneously.

This is, however, not surprising when it is remembered that up to this time no instrument had been devised by which such minute objects as bacteria could be seen.

Notwithstanding, even at this early date there were those who suspected that decomposition was due to the presence of minute animal organisms, though proof of the belief was not at hand. For example, if meat be placed in a covered jar so that flies could not light upon it, they buzzed about the jar, but no maggots developed upon it. They reasoned, therefore, that decomposition which took place in meat when exposed to the air was likewise due to the presence of some low form of animal life. It was not, however, until

some time afterwards that the suspected organisms were actually demonstrated.

More than a century ago experiments were carried on to prove that the processes, putrefaction and fermentation, were due to micro-organisms; for example, it was found that infusions of organic matter, such as beef broth, if boiled in a flask and then sealed so as to exclude the air, would keep indefinitely without undergoing putrefaction, whereas, if exposed to the air they speedily decomposed. This experiment alone demonstrated the following facts, namely, that bacteria may be destroyed by heat, and also that bacteria are present in the air.

While many important discoveries were made during the early part of the present century, the most of what is known has largely been developed during the last twenty years; for instance, the remarkable work of Pasteur and especially that of Koch, whose ingenuity devised special means for the cultivation of bacteria, has rendered possible the separation of the different species, thereby permitting classification and the study of their peculiar features. Two other important factors have contributed in no small degree to the wonderful advances made in our knowledge of bacteriology, namely, the perfection of the compound microscope, and the introduction of aniline dyes by means of which bacteria may be stained.

What are bacteria? The word bacterium literally means a little stick, suggested to the early observers no doubt by the similarity of certain larger bacteria to short rods or sticks. Since we generally speak of micro-organisms collectively, we employ the term bacteria, which is the plural of bacterium.

Bacteria belong to the lowest order of vegetable life, and it is, therefore improper to speak of them as animals, as is sometimes done. They receive their nutrition by a process of imbibition, and differ, therefore, from the lowest forms of animal life, which may receive within them solid particles of matter, and after having extracted the nutriment may throw off the extraneous residue.

If suspended under a microscope, suspended in a drop of water, a certain portion of bacteria are observed to be endowed with active motion. Thus they will be seen dancing about, turning on their long axis, presenting a picture of most marked animation. This marked activity can be demonstrated by special staining processes.

THE RAPIDITY OF FORMATION.

The rapidity with which bacteria multiply is most striking. Under favorable conditions the bacterial cell has been observed to divide within the space of an hour, or even, in some instances,

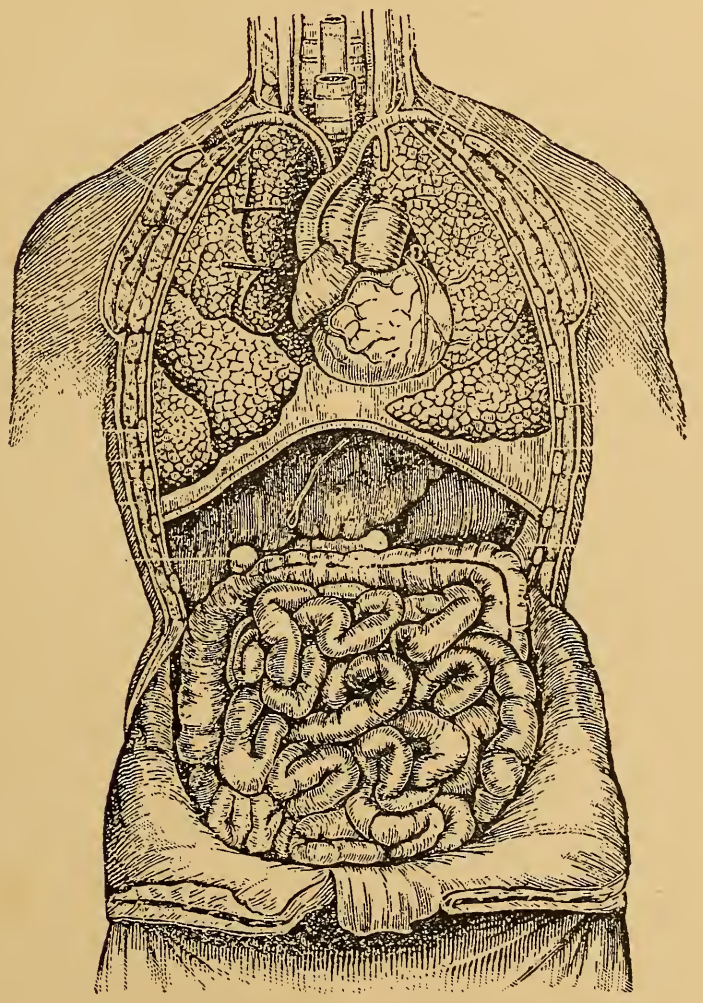

Fig. 26. Front view of the internal organs.

within twenty minutes. At this rate, if multiplication proceeded unchecked, the offspring of a single bacterium would in a few days fill up all the oceans of the world. Fortunately, however, such rapid multiplication is soon limited by lack of food and by various other influences unfavorable to their growth.

A single germ-cell is invisible to the naked eye, and only when

masses of them are present can they be seen. For example, in gelatine, if the germs are allowed to grow ten or twelve hours, small white spots may be observed which consist of masses of bacteria, and each one of those spots or colonies, as they are called, may consist of millions of bacteria.

DISTRIBUTION OF BACTERIA.

Bacteria are very widely distributed. They are present in water, their numbers however depending on the extent of contamination with organic matter. All well and spring waters contain bacteria, which are known as water bacteria, and which may multiply therein, but such bacteria are perfectly harmless, and only when such waters are contaminated by the presence of organic matter are disease-producing germs found present in them to any great extent. The dust invariably contains bacteria which may be wafted about by currents. The air of high altitudes, or that in mid-ocean, may be comparatively free from bacteria, while that near the surface of the earth, especially near human habitations, usually contains more bacteria than locations far removed from such influences.

The ground, especially the superficial layers, is the natural dwelling for a large variety of bacteria.

The presence of decaying vegetable matter is particularly favorable to bacterial growth, and for that reason, virgin soil, just as we would expect, is especially rich in bacteria.

From the most universal presence of bacteria in the water, air, and ground, all objects resting on the earth are more or less contaminated with bacteria. They enter the body with the air we breathe, with the water we drink, and the food we eat. From this it would seem that we are at the mercy of the hosts of bacteria which are constantly about us, and that sooner or later we must succumb to their attacks.

It must, however, be remembered that only a comparatively small proportion of bacteria are harmful, that most are innocuous, and many are extremely useful, if not altogether necessary for our existence. Many bacteria which are found in the ground, the so-called putrefying bacteria, are indispensable to plant life, in bringing about the necessary chemical changes so that decomposing

organic matter may be utilized by plants, which in turn render higher animal life possible.

The very important process of fermentation is due to micro-organisms, as well as are numerous others which are constantly being made use of by every housewife.

On the other hand nature has carefully protected us from the inroads of many of the pathogenic bacteria, by which term is meant those bacteria capable of producing disease. For example, the usual bacteria which produce wound infection cannot penetrate the unbroken skin, and therefore as long as they do not gain entrance to the body through some wound, they may remain on the skin without being harmful.

CONDITIONS NECESSARY FOR GROWTH.

The conditions necessary for the growth of bacteria, are the presence of organic matter, moisture, a favorable temperature, and for most bacteria, oxygen. Most pathogenic bacteria grow best at the body temperature, and any deviation from this, until extreme degrees are reached, inhibits their growth, but does not necessarily destroy them. While moisture is a necessary condition for their growth, its absence does not necessarily destroy them; on the other hand, many bacteria may remain quiescent in the dry state and be distributed through the air, only to grow again when this requisite condition is added.

The process of drying was taken advantage of by the Egyptians in the preservation of their mummies, and has long been taken advantage of in domestic life in the preservation of meats, fruits and vegetables.

Most bacteria require the presence of oxygen for their growth, the requisite amount being supplied by the oxygen present in the air. There are small groups of bacteria which will not grow in the presence of oxygen, and these have been termed anaerobic bacteria, in contradistinction to those which grow in the presence of oxygen, which are termed aerobic bacteria. Even when all the requisite conditions are present, as for example, in a favorable culture medium, bacteria may after a time cease to grow, and may even die out, either from an exhaustion of the soil, a change in the reaction of the culture medium, or from the accumulation of

chemical products, which are elaborated by the bacteria in the process of their growth.

AGENCIES DESTRUCTIVE TO BACTERIAL LIFE.

Certain agencies are destructive to bacterial life, among which may be mentioned physical, chemical, and vital forces.

Of physical agencies, the most important are heat and light. All bacteria and their spores are destroyed by a brief exposure to a boiling temperature or its equivalent in dry heat, and many are destroyed by a prolonged exposure to a much lower temperature. On the other hand, a freezing temperature, as a rule, does not destroy bacteria, but only inhibits their growth. Sunlight is very destructive to some bacteria, as, for example, the tubercle bacillus. Indeed, so sensitive to light is this bacterium that, in order to propagate it on artificial culture media, light must be excluded.

Most bacteria grow best on neutral or slightly alkaline media. The presence of a mere trace of acid will absolutely inhibit the growth of many bacteria, while the mineral acids in concentration quickly destroy all bacteria.

Various other chemicals have a distinct inhibitory action on the growth of bacteria, even when present in the smallest quantities, and in greater concentration quickly destroy them. The best-known examples are corrosive sublimate, carbolic acid, and the salts of silver. Among other chemical agencies might be mentioned the chemical products of bacteria themselves, usually called ptomaines and toxines, which are frequently very complex chemicals.

The vital forces which are injurious to bacteria, and which are usually spoken of as the resistive power of the body, exist in the living cell, the blood, and the lymph, and are beginning to be regarded as very important factors in the combat which is constantly being waged between bacteria and the animal organism.

Fig. 27. Germ of Diphtheria.

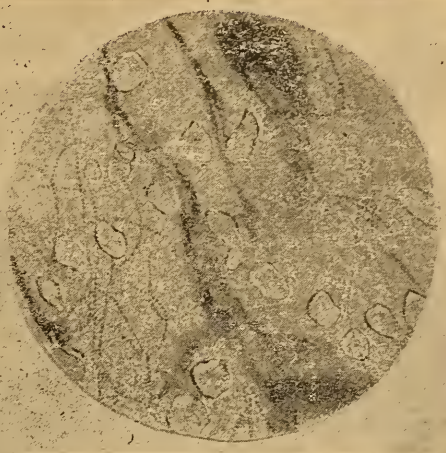

Fig. 28. Germ of Erysipelas.

Fig. 29. Germ of Typhoid Fever.

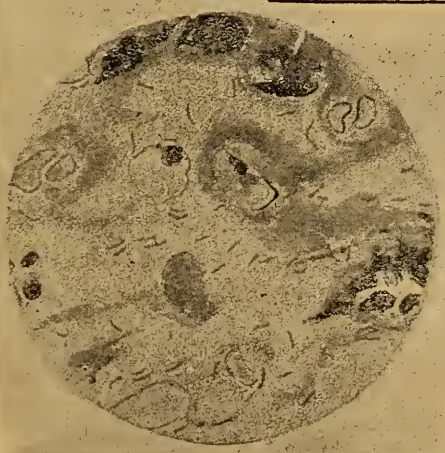

Fig. 30. Germ of Tetanus or Lockjaw.

Fig. 31. Germ of Tuberculosis.

INFECTION.

By the term infection, as applied to the individual, is usually understood that process by which bacteria gain entrance to the body and produce disease. On the other hand, it is common to speak of inanimate objects as being infected when they serve merely as the carriers of infection. Thus we speak of an infected house, or infected clothing.

Again, the contagious principle is frequently termed the infection. It will thus be seen that the word has been used in a rather wide sense.

The term infectious has often been used to designate certain diseases. By an infectious disease is meant one which may be transmitted from one person to another without necessarily implying direct personal contact with a person suffering from a disease; while by a contagious disease, as the name signifies, is implied a disease communicated by direct personal contact. The modern interpretation of the term infectious, as applied to disease, signifies any disease which may, by any means, be transmitted from one person to another; while the term contagious is used in a more restricted sense, and is applied only to those diseases which are readily transmitted. As an example of an infectious disease might be mentioned typhoid fever, while in smallpox we have the best example of a contagious disease. According to this interpretation, a contagious disease is always infectious, while an infectious disease is not necessarily contagious.

INFECTIOUS PRINCIPLES.

The infectious principle of a contagious disease is called the contagium, and is invariably a bacterium, though there still remain a number of diseases in which the specific micro-organism has not been discovered.

A person is said to be immune from a certain disease, when, after having been brought into contact with the contagium, he is but slightly or not at all affected.

At present we do not know the exact nature of this process. It is a well-known fact that in many cases of the contagious diseases, as, for example, smallpox, scarlet-fever, measles, and whooping cough, one attack protects against another and renders the person

immune for life. Immunity may be transmitted from the mother to the offspring, and is also conferred by artificial means against certain diseases. For example, immunity is conferred against smallpox by vaccination, and against diphtheria by the serum of the blood of an immunized animal.

As above stated, infection may take place through the respiratory tract, through the digestive tract, or through the skin. It is probable that the first two modes of entrance are the most frequent. As has been stated, bacteria are universally present in the air, in water, and consequently in our food. So that it is not difficult to explain the development of the disease, given the necessary presence of the specific micro-organism.

Several factors, however, enter into the question of infection, and the mere access of the specific bacteria to the body by no means always produces the disease. Thus the invading bacteria may be weakened in virulence or gain access only in small numbers; then, again, they may find the soil unfavorable or the resistive powers of the body very strong, so that they perish without causing harm.

Those bacteria which gain entrance through the intestinal tract must run the gauntlet of the stomach, which, during digestion in health, contains a corrosive fluid highly destructive to bacteria.

SOURCES OF INFECTION.

The primary source of infection is always the person suffering from the disease. Not all bacteria which are present in the body of an infected person are eliminated, but many are destroyed in the body during the progress of the disease.

It is important to bear in mind the channels through which bacteria escape from the body, so that they may be destroyed and infection of other persons thus be prevented.

Indeed, such precautionary measures for the prevention of the spread of disease are too seldom taken.

TRANSMISSION.

In only a comparatively few diseases is the transmission of the infection direct from one person to another. Thus, bacteria may escape from the body of a person suffering from the disease, as, for example, the sputum of a patient suffering from tuberculosis

of the lungs, which, if allowed to dry, is taken up by the air as dust, and is freely disseminated. Such a patient may, in this manner, become a menace to the household or to an entire community. The same may be said of typhoid fever, in case of failure to disinfect the stools, which invariably contain the infectious principle. In this instance, however, the bacteria find their way to the soil and ultimately to drinking water, through which they gain entrance to the body. It will, therefore, not be out of place to mention the most important infectious diseases and the channels through which the specific bacterium escapes from the body. The following diseases are due to recognized bacteria which escape from the patient in the following manner:

Pneumonia is of different varieties due to different micro-organisms. Lobar pneumonia is due to the pneumococcus of Fränkel. It escapes through the body through the sputum, and secretions from the mouth and nose. Its infectiousness is very slight, and the possibility of direct transmission from one person to another is doubted by many.

Influenza is due to a bacillus which is present in the sputum and secretions from the mouth and nose. It is highly infectious and is probably transmitted through the air.

Tuberculosis is due to a bacillus which escapes from the body through the sputum or by the secretions or excretions from any part of the body which may happen to be involved. It is moderately infectious and may be transmitted from one person to another.

Whooping cough is due to a bacillus which is present in the sputum and secretions from the mouth and nose. It is highly infectious for persons not immune by previous attack.

Diphtheria is due to a bacillus present in the secretions from the throat and nose. It is markedly infectious for children, only slightly so for adults.

Asiatic cholera is due to a spirillum which is evacuated from the body through the gastro-intestinal tract, especially the stools. It is markedly infectious, and may be transmitted directly from one person to another.

Yellow fever is due to a bacillus. Little is known about the manner of its escape from the body. It is very highly infectious and is said to gain entrance to the body through the lungs.

Typhoid fever is due to a bacillus which escapes from the body through the secretions, the urine, and especially through the stools. Infection gains entrance to the body through the gastro-intestinal tract. The disease is only slightly infectious, rarely being transmitted directly from one person to another, and then only as a result of contamination of the hands, which in turn carry the infection directly to the mouth or to food or to drink.

Leprosy is due to a bacillus which is present in the secretions from ulcers and mucous surfaces. Its infectiousness is not very marked, but it may be transmitted from one person to another.

In the case of eruptive fevers, as measles, scarlet-fever, and smallpox, no specific bacteria have as yet been discovered. The contagious element in all these diseases is said to be present on the skin, and is thrown off during the process of desquamation. All these diseases are highly infectious and contagious.

The bacteria which concern the surgeon differ from those causing infectious diseases in the fact that they invariably gain entrance to the body through some wound, whether deliberately made by the surgeon, as, for example, operations, or wounds the result of some accidental injury. A certain number of bacteria which gain entrance to the body in this manner universally produce a set of symptoms so characteristic as to admit of designation as special diseases. Among these may be mentioned tetanus, glanders, anthrax, syphilis, and tuberculosis.

WHERE BACTERIA ARE TO BE FOUND.

The distribution of bacteria is almost universal. They are present in the air, the water, the ground, and on all objects, for example, our bodies, and utensils of every description are contaminated to a greater or less extent with bacteria. But not all bacteria are dangerous or capable of infecting a wound, in fact only a comparatively few varieties are known to be dangerous; thus drinking water, unless contaminated from some other source, or the air from the dust of an operating room, seldom contains the bacteria known to infect a wound. Therefore, in order to eliminate as nearly as possible the danger of infection from these two sources, all water to be used at an operation is boiled, and hence rendered sterile, and the operating room is kept free from dust.

All objects including utensils, instruments of every kind, dressings, etc., are more or less infected, and in order to eliminate all source of infection, modern surgery requires that they be sterilized before use.

INFECTION OF WOUNDS.

The most frequent source of infection of wounds is the surface of the body, especially the skin and its appendages, the hair and the nails. In fact, many of the most active of bacteria of wound infection are constantly present on the skin, and for certain species, the skin seems to be the most natural dwelling, especially the surface of the body which is constantly exposed, therefore the head and face, and especially the hands invariably contain bacteria capable of producing infection in a wound.

Not only the skin, but the mucous membrane lining the nose and eyes, the mouth, the intestinal, respiratory and genito-urinary tracts invariably contain bacteria capable of producing wound infection.

THE NECESSITY FOR PERSONAL CLEANLINESS.

Personal cleanliness will to some extent lessen the number of bacteria present on the skin, by removing the superficial scales of the outside layer of the skin, which are constantly being thrown off, but it will not keep the skin sterilized. It was for a long time taught and practiced in the leading hospitals in the country that personal cleanliness was sufficient to avoid wound infection on the part of the operator and nurses, but modern surgery demands more than personal cleanliness. Indeed, virulent bacteria have been known to persist on the hands for three or four days after infection, notwithstanding the most painstaking and repeated efforts at disinfection.

Puerperal infection is generally conceded to belong to the wound infections, the same cause producing it as is responsible for wounds elsewhere in the human organism, the source of the bacteria being usually outside of the body, being conveyed to the points of inoculation by external agents, such as the hands, instruments, and the like.

For the avoidance of puerperal infection, the same regulations should be carried out as are employed in the provision of infection of wounds in any other part of the body.

FEEDING OF THE SICK.

Gruels—Oatmeal, Cornmeal, Rice, Farina, Flour—Nourishing Drinks—Punch, Milk, Rum, Sherry, Hot Milk and Water, Egg-Nog, Oatmeal Soup, Beef-Tea, Mutton-Broth, Chicken-Broth, Hot Egg-Nog, Egg Water, Egg-Broth, Lemonade With Egg, Egg Flip, Lemonade, Corn Tea, Crust Coffee, Tea, Coffee, Chocolate—Tapioca Jelly, Sago, Arrow-Root, Arrow-Root Milk, Whipped Cream, Cornstarch Pudding, Beef Juice, Mint Tea, Cream Soup, Flaxseed Lemonade, Irish Moss Lemonade, Barley Water, Toast Water, Apple Water, Bran Tea, Wine Whey, Flaxseed Tea—Peptonized Foods—Peptonized Milk, Peptonized Gruel, Peptonized Beef-Tea—Suggestions and Rules for Diet of Invalids—Fluid Diet.

GRUELS.

Oatmeal gruel. (Time 30 minutes.) One quart boiling water, half pint medium oatmeal, half teaspoonful salt.

Pour the boiling water over the meal, stir it well and strain through wire sieve. Boil the liquid which is strained off until it thickens and looks clear; if too thick, add the boiling water until it is of the desired consistency; add the salt, and, if allowed, two tablespoonfuls of sweet cream, which will greatly improve taste.

Cornmeal gruel. (Time, 2 hours.) One tablespoonful cornmeal, quart of boiling water, saltspoonful of salt.

Sprinkle the meal into the water while boiling, stirring all the while to prevent lumps, add the salt and simmer slowly two hours; if too thick, thin it with boiling water.

Rice gruel. (Time, 2 hours.) Two tablespoonfuls rice, six tablespoonfuls cold water, one and a half pints new milk, one teaspoonful sugar, half a teaspoonful salt.

Wash the rice thoroughly, and soak in cold water one hour; put it in a double kettle with the milk and simmer until the rice is well done, then pulp it through a wire sieve and add the sugar and salt.

Farina gruel. (Time, 30 minutes.) One tablespoonful of farina, one pint of boiling water, half a saltspoonful salt.

Sprinkle the farina into the boiling water, stirring all the time to prevent lumps, add the salt and simmer slowly half an hour. A teaspoonful of cream will improve the taste of the gruel, and, if allowed, should be stirred in just before it is removed from the fire.

Flour gruel. (Time, 30 minutes.) Mix a tablespoonful of flour with milk enough to make a smooth paste and stir it into a quart of boiling milk. Boil for half an hour, being careful not to let it burn, salt and strain.

VARIOUS NOURISHING DISHES FOR THE SICK.

Milk punch. To half a pint of fresh cold milk, add two teaspoonfuls of sugar and an ounce of brandy or sherry; stir till the sugar is dissolved.

Rum punch. Dissolve one teaspoonful of sugar in half a pint of milk, stir in two tablespoonfuls of rum, and mix well by pouring from one glass to another twice.

Sherry punch. Put quarter pint of milk into a goblet, dissolve one teaspoonful of sugar in it, and add two tablespoonfuls of sherry wine.

Hot milk and water. Boiling water and fresh milk in equal parts compose a drink highly recommended in cases of exhaustion. as it is quickly absorbed into the system, with very little digestive effort.

Egg-nog, 1. Beat the white of an egg stiffly, then stir into it in turn, a tablespoonful of sugar, the yolk of an egg, a tablespoonful each of ice-water, milk and wine; do not beat, but stir very lightly.

Egg-nog, 2. Beat up one egg with a tablespoonful of sugar, stir into this a cup of fresh milk, an ounce of sherry, or half an ounce of brandy, and a little nutmeg.

Oatmeal soup. Put two ounces of oatmeal in a basin, pour over it a pint of cold water, stir it, and let it stand a minute; then pour over it quickly, stirring all the time, a pint of good broth, pour

through a fine strainer into a sauce-pan, taking care that none of the coarse part of the meal goes into the soup. Boil the soup for ten minutes, season and serve.

Beef-tea. A pound of lean beef should be freed from fat, tendon, cartilage, bone, and vessels; it should be chopped up fine, and put in a pint of cold water to digest for two hours. It should simmer on the range or stove for three hours, but the temperature should not exceed 160 degrees Fahrenheit. The water lost by evaporation should be made up by the addition of cold water, so that a pint of beef-tea should represent one pound of beef. It should be strained, the beef being carefully expressed. A wine-glassful every three hours is a suitable quantity for administration in ordinary, acute cases.

Mutton-broth. Lean loin of mutton, one pound, exclusive of bone; water, three pints. Boil very gently till tender, throwing in a little salt and onion according to taste. Pour out the broth in a basin, and, when it is cold, skim off the fat. It can be warmed up as wanted.

Chicken-broth. Skin, and chop up small, a small chicken, or half a large fowl, and boil it bones and all, with a blade of mace, a sprig of parsley, and a crust of bread, in a quart of water, for an hour, skimming it from time to time. Strain it through a coarse colander.

Hot egg-nog. Beat together the yolk of an egg and a teaspoonful of sugar, and stir into a pint of milk at boiling point, add a tablespoonful of brandy or whisky, and grate a little nutmeg over the top.

Egg water. Stir the whites of two eggs into half a pint of ice-water, without beating, and add enough salt or sugar to make it palatable.

Egg-broth. Beat together one egg and half a teaspoonful of sugar, till very light, and pour on a pint of boiling water, stirring well to keep it from curdling, add salt, and serve hot.

Lemonade with egg. Beat one egg with two tablespoonfuls of sugar, until very light, then stir in three tablespoonfuls of cold water, and the juice of a small lemon, fill the glass with pounded ice and drink through a straw.

Egg flip. Beat one egg and four teaspoonfuls of sugar together until stiff and light, pour half a pint of hot beer (not boiling),

into it, stirring briskly to prevent curdling, and pour it from one bowl to another, to make it foamy and light.

N. B.—This is used when stimulant and nourishment are required, and should only be taken in small quantities, unless otherwise ordered by physician.

Lemonade, No. 1. Two tablespoonfuls of lemon juice, one tablespoonful of sugar, half a pint of ice-water, one tablespoonful pounded ice, two thin slices of lemon. Put all in a large goblet, and stir until sugar is dissolved.

Lemonade, No. 2. Two tablespoonfuls of lemon juice, one tablespoonful of sugar, half pint boiling water. Put all ingredients into a hot bowl, and stir until sugar is dissolved; drink it hot.

Corn tea. Parch brown a cupful of dry sweet corn, grind or pound it in a mortar, pour over it two cups of boiling water, and steep for a quarter of an hour, then strain and add boiled milk and sugar.

Crust coffee. Take a pint of crusts—those of Indian bread are the best—brown them well in a quick oven, but do not let them burn, pour over them three pints boiling water, and steep for ten minutes, serve with cream.

Tea. Tea should be made in an earthen pot, first rinsed in boiling water. Allow a teaspoonful of tea to each half pint of water. Put in the tea, and after letting it stand for a few moments in the steaming pot, add the water, freshly boiling, and let it stand where it will keep hot, but not boil, from three to five minutes.

Coffee. Stir together two tablespoonfuls of freshly ground coffee, four of cold water and half an egg. Pour upon them a pint of fresh boiling water, and let them boil for five minutes, stir down the grounds, and let it stand where it will keep hot, but not boil, for five minutes longer. In serving, put sugar and cream in the cup first, and pour the coffee upon them.

Chocolate. Scrape fine an ounce of chocolate, add two tablespoonfuls of sugar, and one tablespoonful of hot water; stir over a hot fire for a minute or two, until it is smooth and perfectly dissolved, then pour into it a pint of boiling milk, mix thoroughly and serve at once. If allowed to boil after the chocolate has been added to the milk, it becomes oily and loses flavor.

Tapioca jelly. One cup of best tapioca put to soak with a pint of cold water; when soft put in a saucepan with one cup of sugar,

the rind and juice of one lemon, a little salt, one pint more water; stir until it boils; turn into a mould; set to cool; add one glass of wine if desired.

Sago. Put half an ounce of sago into an enameled saucepan with three-quarters of a pint of cold water, and boil gently for an hour and a quarter. Skim when it comes to a boil, and stir frequently. Sweeten with a dessertspoonful of sifted loaf sugar. If wine be ordered, two dessertspoonfuls; and, if brandy, one dessertspoonful.

Arrow-root. Mix two teaspoonfuls of the best arrow-root with half a wineglass of cold water; add a pint of boiling water; put it into an enameled saucepan, and stir over the fire for three minutes. Sweeten with three teaspoonfuls of sifted loaf sugar. Add either a wineglassful of white wine, or a tablespoonful of brandy, if permitted.

Arrow-root milk. Mix two teaspoonfuls of arrow-root with a wineglassful of new milk; add half a pint of boiling milk; put it into an enameled saucepan, and stir over the fire for three minutes. Sweeten with a dessertspoonful of sifted loaf sugar.

Whipped cream. Beat half a pint of fresh, sweet cream with a whisk, add a dessertspoonful of very finely powdered loaf sugar, and twenty drops of essence of vanilla or any other flavoring; when firm it is ready for use, but is much improved by being on the ice for an hour or two.

Cornstarch pudding. One quart of milk, four tablespoonfuls of cornstarch, four eggs, one tablespoonful of butter, six tablespoonfuls of sugar. Dissolve the cornstarch in a little cold milk, and, having heated the rest of the milk to boiling, stir this in and boil three minutes, stirring all the time. Take from the fire, and while still hot put in the butter. Set away until cold. Beat the eggs very light, whites and yolks separately. Stir the sugar and any flavoring desired in the yolks and then add the beaten whites, and stir in the cornstarch, beating thoroughly to a smooth custard. Turn into a buttered dish and bake half an hour. To be eaten cold.

Beef juice. Broil quickly some pieces of round or sirloin, of a size to fit in the cavity of a lemon-squeezer. Both sides of the beef should be quickly scorched to prevent the escape of the juices, but the interior should not be fully cooked. As soon as ready, the pieces should be pressed in the lemon-squeezer, previously heated by being dipped in hot water. The juice, as it flows away, should

be received in a hot wineglass, and, after being seasoned to the taste with salt and a little Cayenne pepper, eaten while hot. If preferred, the juice may be frozen.

Mint tea. Put one pound each of beef, mutton and veal, cut into small pieces, into three pints of cold water. It should simmer for three or four hours, but not boil. When finished, the tea should be carefully strained, and seasoned with salt and Cayenne pepper, if preferred.

Cream soup. Take one quart of good stock (mutton or veal), cut one onion into three quarters, slice three potatoes very thin, and put them into the stock with a small piece of mace; boil gently for an hour; then strain out the onion and mace; the potatoes, by this time, have dissolved in the stock. Add one pint of milk, mixed with a very little cornflour to make it about as thick as cream. A little butter improves it. This soup may be made with milk instead of stock, if a little cream is used.

Flaxseed lemonade. Three tablespoonfuls of flaxseed, two tablespoonfuls of sugar, one pint boiling water, three tablespoonfuls lemon juice. Put the flaxseed and sugar into a pitcher, pour the boiling water over them, and steep on the back part of stove one hour, strain, add lemon juice, serve cold.

Irish moss lemonade. Quarter pint Irish moss, quart boiling water, six tablespoonfuls lemon juice, four tablespoonfuls sugar. Wash the moss thoroughly and let it soak in cold water ten minutes, then remove all imperfect parts, and any gravel that may adhere to it. Put it in a pitcher with all the other ingredients, cover closely, and steep on the back part of the stove two hours, then strain through a wire sieve. and serve either hot or cold.

Barley water. Wash two ounces of pearl barley in cold water, then boil for three minutes, and throw both waters away, add two quarts of boiling water and boil until reduced to one quart—or about two hours—stirring frequently, strain, add the juice of a lemon and sweeten.

Toast water. Toast three slices of stale bread to a very dark brown, but do not burn. Put into a pitcher, and pour over them a quart of boiling water, cover closely, and let it stand on ice until cold, strain. A little wine and sugar may be added, if desired.

Apple water. Slice into a pitcher half a dozen juicy sour apples,

add a tablespoonful of sugar, and pour over them a quart of boiling water, cover closely until cold, then strain. (Slightly laxative.)

Bran tea. To a pint of wheat bran, add a quart of boiling water, let it stand where it will keep hot (but not boil) for an hour, strain and serve with sugar and cream.

Wine whey. Put two pints of new milk in a saucepan, and stir it over a clear fire till it is nearly boiling; then add a gill of sherry and simmer it for a quarter of an hour, skimming off the curd as it rises. Then add a tablespoonful more sherry, and skim again for a few minutes.

Flaxseed tea. Flaxseed, whole, one ounce; white sugar, one ounce; licorice root, half an ounce; lemon juice, four tablespoonfuls. Pour on these materials two pints of boiling water; let them stand in a hot place four hours, and then strain off the liquor.

PEPTONIZED FOODS.

The investigations of Dr. Roberts, of Manchester, have been of great service in the use of food which has been artificially digested, or peptonized food, as Dr. Roberts recommends it to be called. Benger's preparation of the natural digestive ferments is used extensively and is added to the milk or gruel, as the case may be, as follows:

Peptonized milk. Dilute a pint of milk with a quarter pint of water and divide the mixture into two equal portions. Heat one portion to the boiling point, and then mix it with the cold portion. Now add to this three fluid drachms of pancreatic solution—Liquor Pancreatis (Benger)—and about twenty grains of bicarbonate soda, mix well together and set aside in a covered jug, in a warm location, under a "cosy" for an hour or an hour and a half. Then boil for two or three minutes and serve like ordinary milk.

Peptonized gruel. It may be prepared from oatmeal, wheaten flour, pearl barley, etc., and should be thick and strong and very well boiled. Allow the gruel to cool to a temperature so that it can be sipped without burning the mouth (140° Fahr.), and then to every pint of gruel add two teaspoonfuls of the pancreatic solution, and mix well together, pour the whole into a jug with cover, and set it aside in a warm place for about a couple of hours. Finally boil it for three minutes and strain.

Peptonized beef-tea. Mix half a pound of finely minced lean beef with a pint of water and twenty grains of bicarbonate soda, and let the whole simmer for an hour and a half; when it has cooled down to the temperature of 140 degrees Fahr., add a teaspoonful of the pancreatic solution and place the mixture in a warm place for a couple of hours. stirring it from time to time, then strain off without pressure and boil the liquid for five minutes.

VALUABLE SUGGESTIONS AND RULES FOR THE DIET OF INVALIDS.

For general rules for guidance in feeding the sick we copy the following from high authority: In acute diseases it is well to recommend a special plan of diet; in chronic cases it is often more convenient simply to forbid those articles which are likely to prove harmful. Before recommending any article it is well to ascertain whether the patient likes it and how it agrees with him. No article of food should be forbidden unless one has good reason for doing so. Unless there is some strong contra-indication, attention should always be paid to the wishes and taste of the patient. This rule was first formulated by Hippocrates in the aphorism, "Such food as is most grateful, though not so wholesome, is to be preferred to that which is better, but distasteful;" and Sydenham recognized its value when he wrote: "More importance is to be attached to the desires and feelings of the patient, provided they are not excessive or dangerous, than to doubtful and fallacious rules of medical art."

If any article of food disagrees it is better to reduce the quantity of it taken, before cutting it out of the dietary altogether. Changes in diet should, if possible, be made gradually. One should never prescribe a diet for a patient without having first ascertained what his habits are as regards work and exercise.

FLUID DIET.

This is the first diet in fever. It has the advantage of supplying water to the tissues, of which they stand in special need in fever; they gratify thirst and do not necessitate chewing, which taxes the patient, owing to the diminution of the salivary secretions. Milk is the simplest and most available of nutritious liquid foods. It should form the basis of the diet. If it does not seem to agree

with the patient give it in small proportions, and let it be taken very slowly and frequently, or modify it by adding water, or some alkaline, or effervescing water or lime water. It may be the fat in the milk which causes the trouble. In this case it should be skimmed. If the patient tires of it change the flavor; a little cold coffee, caramel or malt extract will often be agreeable. The milk may be fortified by addition of cream, if easily borne, or by one of the carbohydrates, such as milk sugar or a pure gelatine in small quantity, or the white of egg, or several other food articles well known to the physician. Sometimes milk will produce vomiting and diarrhea, which makes it necessary to peptonize the milk or give kumyss instead. However, restrict the feeding to the plain (and if necessary diluted) milk diet, to the patient in bed with fevers of short duration, until you find that insufficient to repair nutrition. Two quarts a day will meet the demands and sometimes even a little less in cases where the body can afford to a certain extent to draw upon its own resources, and sometimes this must be allowed when the stomach is weak and very easily overtaxed.

Soups, beef-tea and broths belong to fluid diet, but are not strictly speaking foods. They are slightly stimulating and used chiefly to excite the appetite and are grateful to the thirst of the patient. These may be given in the proportion of a pint a day. When diarrhea is present avoid the use of soups, broth, etc., containing meat extractives.

DIET.

What to Eat and What Not to Eat in Gout, Rheumatism, Neurasthenia, Obesity and Acid Conditions of the Blood —List Prepared by an Eminent German Specialist in Nervous Diseases and Diseases of the Blood.

EAT.

Soups. Bouillon or beef-tea or clam broth occasionally, say twice a week.

Meats. Mutton, lamb, chicken, squab, quail, and sparingly of beefsteak, roast beef, but medium well done. Ham and bacon (occasionally).

Fish. All kinds, broiled, except salmon. Oysters only raw, use only lemon juice and salt with them.

Vegetables. Spinach, asparagus, egg plant, oyster plant, string beans, French peas (but tender), celery. Boil all vegetables, mixing one-fourth ounce bicarbonate of soda in water. Potatoes sparingly, either boiled, baked or mashed.

Fruits. Apples, raw or baked without sugar, oranges, lemons (sparingly), pears (sparingly), grapes and peaches.

Dessert. Light pudding occasionally, such as custard or bread pudding.

Bread. Toast, stale white, stale whole meal, rye or zweiback. Crackers, sparingly.

Beverages. Boiled milk (sparingly), better mixed with lime water. Coffee with plenty of boiled milk once a day only. Weak tea, with plenty of boiled milk. Buttermilk, kumyss or matzoon.

Liquors. One ounce whisky diluted, once a day. Women, one-half ounce.

Wines. California white or Moselle (still). Cider.

Eggs. Soft boiled, poached on toast or hard boiled, but must boil twenty minutes or longer.

Butter. Sparingly.

Salts. Freely.

AVOID.

Soups. Rich, spicy, especially clam chowder.

Meats. Fresh pork, veal, turkey, goose, duck, sausages, chopped meats, corned beef, smoked beef.

Fish. Salmon.

Oysters. Baked, fried or stewed. Crabs and lobsters, clams and shrimps.

Vegetables. Rhubarb, tomatoes, succotash, corn, cabbage, cauliflower, turnips and carrots.

Potatoes. Fried and salad, also sweet potatoes.

Salads. All kinds.

Fruits. Strawberries and bananas.

All sugar, vinegar, pastry, cereals, such as oatmeal, rice and mush, fresh bread, hot rolls, hot cakes.

Beverages. Cocoa, chocolate, raw milk, all sparkling wines, malted liquors, clarets, all ice cream and especially ice cream soda.

Eggs. Fried, scrambled, shirred, omelettes.

Cheese of all kinds.

Avoid pepper and all spices except salt.

Catsup and Worcestershire sauce, sour horseradish.

Raisins, almonds, nuts.

WATER AND ITS USE.

PHYSIOLOGICAL EFFECTS OF WATER, INTERNAL—PHYSIOLOGICAL EFFECTS OF WATER, EXTERNAL—EFFECTS OF COLD WATER—EFFECTS OF WARM WATER—MANNER OF APPLYING—THE WET-PACK, THE RUBBING WET-PACK, THE DOUCHE—THE SITZ BATH, BRAN BATH, SALT BATH, MUSTARD FOOT BATH—THE HOT AND COLD COMPRESS, METHOD, PHYSIOLOGICAL EFFECTS—THERAPEUTIC APPLICATIONS—THE HOT AND COLD HEAD COMPRESS—THE HOT AND COLD LUNG COMPRESS—THE HOT AND COLD KIDNEY COMPRESS—THE HOT AND COLD GASTRO-HEPATIC COMPRESS—THE HOT AND COLD INTESTINAL COMPRESS—THE HOT AND COLD PELVIC COMPRESS—THE HOT AND COLD HEATING COMPRESS OR PACK, PHYSIOLOGICAL EFFECTS—THE HOT AND COLD CHEST BATH—THE HOT AND COLD ABDOMINAL PACK, USE IN VOMITING—THE HOT AND COLD LUMBAR PACK—THE HOT AND COLD SPINAL PACK—THE HOT AND COLD PELVIC PACK—SPECIAL FORMS OF COMPRESS—THE CEPHALIC COMPRESS, PHYSIOLOGICAL EFFECTS, THERAPEUTIC APPLICATIONS.

SOME REMARKS ON HOW AND WHEN TO USE WATER, INTERNAL AND EXTERNAL.

Physiological effects of water, internal. It need hardly be stated that water is an essential constituent of the tissues.

A certain quantity of water or fluid aliment is necessary to the digestive process. An excessive quantity impairs digestion, by so far diluting the gastric juice as to render it incapable of dissolving the foods. The free use of cold drinks—ices and iced water—seriously disorders digestion. To this state, induced by

the free use of very cold drinks during meals, or during the time of digestion, has been applied the term "ice water dyspepsia," a very common malady in the United States.

A glass of cold water before breakfast will in many persons cause a satisfactory evacuation of the bowels. The activity of the water is increased by the addition to it of a teaspoonful of common salt.

Although water is essential to the constitution of the fluids and solids of the body, there is no doubt that large and frequent draughts of water may prove injurious by too great increase in the fluidity of the blood, and a consequent damage to the red corpuscles.

Physiological effects of water, external. The influence of temperature must necessarily be considered in connection with the effects of water when applied externally.

Effects of cold water. When an extremity—for example the hand—is immersed in cold water, the temperature of the other hand also falls. Cold water abstracts the heat of the body, at least of its superficial surface, and affects the condition of the internal organs through the nervous system.

When a cold bath is entered a marked sense of chilliness is experienced, the skin becomes pale and is roughened by the erection of the hair follicles, the lips are blue, the breath has a spasmodic and catching character, and the pulse is quickened. The temperature of the surface is lowered, for the blood accumulates in internal organs, and the nerves of the skin are depressed. If the temperature of the water be not too low, and if the bodily vigor be sufficient to withstand the shock, the condition known as "reaction" speedily ensues. The coldness and depression are succeeded by warmth and a feeling of exhilaration; the pulse quickens, and the respiration becomes easy and unembarrassed; and the muscular strength is increased. If, however, the body be immersed for too long a period, the condition of reaction is supplanted by coldness, depression, weakened pulse, and muscular debility.

Effects of warm water. The degree of effect which is produced by the immersion of the body in warm water is influenced by the temperature; but the quality of the effect is the same at all degrees from tepid to hot. The sense of warmth is at first grate-

ful to the feelings; the skin becomes red from the increased activity of its vessels; the pulse quickens in beats, but diminishes in tension; the respiration is more frequent; and giddiness, faintness, and muscular languor, are finally produced, if immersion be prolonged or the temperature be too high.

Manner of applying the water. The water of a *cold bath* should have a temperature of 50 to 60 degrees Fahr. The *tepid bath* has a temperature of from 85 to 95 degrees, the *warm bath* from 95 to 100, and the *hot bath* from 100 to 106 degrees Fahr.

The vapor of water in the form of the *Russian bath, steam-bath,* or *warm* or *hot wet-packing,* may be used to accomplish the same objects as those obtained by the warm or hot bath. Without entering unduly into the details, it will suffice to state that the Russian bath consists in the exposure of the body in suitable apartments to the vapor of hot water, at a temperature gradually increased from 95 to 110 degrees Fahr. The bath should not, under ordinary circumstances, exceed fifteen minutes in duration. In order to overcome the relaxing and debilitating effects of the bath, one should either enter a cold bath slowly, or have cold water dashed over the body. This expedient, conjoined with friction of the surface, increases materially the good effects of the Russian bath. In the absence of special arrangements for giving the Russian bath, simple means will suffice. The patient may sit upon a low stool with a blanket pinned around his neck, and under this the vapor of water may be conducted. Or, if confined to bed, the patient may be placed on a gum-cloth, and the blanket may be elevated above him by hoops, arranged transversely, under which the vapor of water may be conveyed from an ordinary tea-kettle. Fresh lime is sometimes used to generate hot vapor. The patient is placed on a low stool and surrounded by a blanket. Some pieces of *freshly burned* lime are then dropped into a vessel of water placed under the blanket. The slacking of the lime causes great heat, and the consequent generation of a considerable quantity of watery vapor, which also carries up with it minute particles of lime. The proceeding is said to be especially efficacious in membranous croup and diphtheria.

The wet-pack. This produces the good effects of cold-water applications, and consists in wrapping the body in a linen sheet

wrung out in cold water. The patient should be placed in an ordinary single bedstead, on which is a hard mattress covered with several thicknesses of blankets or comforters. The sheet is dipped in cold water, and, when thoroughly wrung out, is laid smoothly on the bed. The patient reclines on the sheet, his head supported by a pillow. One side of the sheet at a time is then drawn over the patient's body and neatly tucked under the opposite side, the feet and legs being lifted up and the sheet made to entirely envelop them. Some blankets or comforters are now closely applied around the body of the patient. There is first experienced a disagreeable sense of chilliness and discomfort, which is soon succeeded by a delightful glow. When reaction is fully established, the wet-pack should be removed, and the body be well rubbed with dry towels. The duration of this application should be from fifteen minutes to an hour.

The rubbing wet-pack. This is a convenient mode of taking the morning bath as a hygienic measure, and also of procuring more speedily some of the good effects of the wet-pack as applied above. It consists in enveloping the body with a sheet dipped in cold water, and rubbing vigorously with the sheet to induce reaction quickly. The patient stands up during the application, and an attendant rubs those parts inaccessible to the patient. When the sheet is removed the skin is dried by the vigorous application of coarse towels, and the patient immediately puts on his clothing.

The douche. This consists in the impact against the body of a column of water from a height. No greater height than ten feet, and a column not larger than four inches, will be proper or safe under any circumstances. A hose attached to a water-pipe, the supply being regulated by a stop-cock, is a convenient method of using the douche. In domestic practice a large pitcher or water-bucket, if provided with a suitable spout, may be utilized for this purpose. The douche may be either cold, tepid or hot; it may have a direction descending, ascending, vertical, horizontal, or oblique; and the effect may be regulated by the height from which the water is projected, the size of the stream, and the force with which it is thrown against the part. As the effect of the douche is very great when the water is cold, when the volume of the stream is large, and when it is thrown with force, it is

obvious that care must be used in directing it against the head, the chest, and the abdomen. As a rule, it is too violent a measure to be employed in weak and susceptible subjects about the trunk, but it may be used freely, of course, on the extremities.

The sitz bath. This bath may be cold, tepid, warm, or hot, as the indications seem to require. The apparatus for administering it consists of a tin or wooden tub of sufficient capacity to contain water enough to cover the hips and lower part of the abdomen when the patient sits down in it. The tub should have a raised back to support the patient, and should be sufficiently elevated above the floor, so that the feet may rest comfortably when the patient sits down in the water. In the absence of special arrangement of this kind, any ordinary washing-tub will suffice. The duration should be from five to thirty minutes.

Bran bath. Put bran enough in a bath to make it milky. This bath is used for softening the skin when it is dry and flaky. It should never be used in stationary tubs, for in letting off the water the bran will be sucked down and will choke the pipe.

Salt bath. Put in a pound of rock salt to four gallons of water; increase salt in proportion to water. This bath is useful in invigorating feeble constitutions.

Mustard foot bath. Mustard foot baths are employed as a counter-irritant. To prepare a mustard bath, two tablespoonsful or more of mustard should be tied in a cloth and agitated well with cold water; then hot water may be added to make the bath. It is found by experiment that cold extracts the active principle far better than very hot does.

In addition to what has already been said in relation to the use of water, and inasmuch as this very valuable remedy is within the reach of every one, the following method for its use externally will be found very valuable.

THE HOT AND COLD COMPRESS.

This procedure consists in the simultaneous and continuous applications of a hot and cold compress to separate skin surfaces collaterally related to a single internal part.

This unique procedure is not applicable to all parts of the body,

but may be applied under appropriate conditions to the head, chest, spine, abdomen, pelvis and legs. The hot and cold compress is a combined application of peculiar interest and value, since it can be relied upon to accomplish, under certain conditions, results which can be attained in no other way, and sometimes affords relief in cases of great suffering and imminent peril.

METHOD.

The adjustment of the hot and the cold compresses respectively, varies for different parts of the body and the different viscera, the circulation of which it is desired to influence. The management of the cold and hot process should be the same as previously indicated for continuous applications; that is, the nervous sensibility of the cutaneous surface to which the cold application is made must be kept alive by rubbing the parts with a dry warm flannel for one minute each time the compress is changed. The compress should be removed every ten or fifteen minutes, or as soon as its temeprature begins to approach that of the body. The hot application likewise should be changed every fifteen or twenty minutes for a cold application of thirty seconds to one minute, so as to empty the veins, restore the tone of the vessels, and to prevent too great accumulation of heat in the deeper parts.

The duration of the hot and cold compress may be from fifteen minutes to one or two hours, or even longer. A good rule is to continue the application until the desired effect is produced, unless decided indications for its interruption appear.

In the employment of the hot and cold compress it must be borne constantly in mind that the application should be made in such a way that the blood vessels of the congested organ in the interest of which the application is made will be caused to contract by the cold compress, the veins or the arteries of the part being at the same time drained into another collaterally related sub-cutaneous area by means of the hot application, in accordance with principles explained elsewhere.

To secure the best effects, the compresses should be adjusted with special relation to internal parts, as explained for each special form of this procedure.

PHYSIOLOGICAL EFFECTS.

The hot and cold compress is a hydriatic measure of great power. It is perhaps the most effective means of controlling the movement of the blood in the internal parts. It acts both reflexly and derivatively. A cold application applied to one cutaneous surface causes contraction of the vessels of the associated internal organ through stimulation of its controlling vasomotor centers, while the hot compress applied to another cutaneous surface, the vessels of which are collaterally related to those of the part, drain off a portion of blood into the dilated cutaneous veins and arteries. The partial reaction following the first impression made by the cold compress and the frequent renewal of the cold application facilitates the movement of blood through the affected part, thus insuring a constant supply of oxygen and fresh nutrient material, the removal of wastes, and the influx of leucocytes, while at the same time, the hot application combats stasis by drawing the blood into collateral venous and arterial channels, at the same time facilitating the rate of movement of the blood through the arteries of the parts by lowering the pressure in the veins. By this combination of effects the distension of blood vessels and stasis of blood is prevented, while the movement of blood is accelerated, thus restoring the normal status of the circulation and greatly facilitating the healing processes.

THERAPEUTIC APPLICATIONS.

The conditions under which the hot and cold compress attains its special successes are those in which ordinary hot or cold applications, if they afford any relief at all, secure no more than partial amelioration of the urgent symptom present, the beneficial effects which might be obtained through the revulsion produced by cold being antidoted by the thermic effects produced by the application; while, on the other hand, hot applications prove too exciting, depressing the heart when long continued, or causing other untoward effects. By a combination of the two, however, in these cases the evil effects resulting from each are antidoted, while the good effects are intensified.

The following forms of the hot and cold compress have been tested, and found practical and useful:—

THE HOT AND COLD HEAD COMPRESS.

Place an ice-bag to the back of the neck and the ice compress to the vertex. Apply very hot compresses to the face and ears. The hot compresses should not extend below the level of the jaw, thus avoiding the heating of the large vessels of the neck. The ice-bag causes contraction of the vertebral arteries; the cold compress to the vertex causes reflex contraction of the meningeal and cerebral vessels, and cools the brain; while the fomentation to the face and ears dilates the external branches of the carotid artery, thus establishing collateral anemia of the brain. The fomentation also dilates some of the venous channels by which the cerebral sinuses are drained.

A reverse method may sometimes be used advantageously in application to the head, as follows:—

A rubber bag filled with hot water and covered with a moist flannel, or a fomentation, is applied to the upper and back part of the neck, while a soft cheese-cloth compress wrung out of cool or very cold water is applied to the face and the top of the head.

The effect of the compress in relieving cerebral congestion is greatly increased by the application of the ice compress or ice-bag to the front of the neck, whereby the blood supply of the brain is lessened by contraction of the carotid arteries.

The combination of heat and cold to the head in this manner renders it possible to make applications of heat to the head for a much longer time than could otherwise be tolerated, the cold antidoting any ill effect which might be produced by the heat, while encouraging the good effects of the application.

The author has made use of this application for many years as a means for relieving certain forms of neurasthenic headache. It is exceedingly useful also in so-called nervous headache accompanied by marked congestion of the brain.

This procedure is especially useful in passive congestion of the brain, and serves a useful purpose as an adjunct procedure in the treatment of insomnia when due to cerebral hyperemia. It should

be avoided, however, in cases of insomnia due to excessive excitability of the cerebral cells, and is of course contraindicated in insomnia due to anemia.

THE HOT AND COLD LUNG COMPRESS.

A thick and very hot fomentation is applied over the back, reaching from the middle of the neck to the lumbar region, and extending to the axillary line on each side. The cold compress should cover the top of the lungs, the lower half of the neck in front, and the whole anterior surface of the chest to the level of the lower ribs. The fomentation diverts the blood from the bronchial arteries by dilating the cutaneous branches of the intercostals, while the cold compress contracts the bronchial arteries through reflex stimulation of the vasomotor centers controlling them. The effects of the application may be intensified by hot applications to the arms and legs applied simultaneously, especially hot packs, which produce decided derivative effects.

DISEASES IN WHICH THE HOT AND COLD COMPRESSES ARE VERY USEFUL.

This procedure is exceedingly useful in the early stages of pneumonia, in broncho-pneumonia, in pulmonary hemorrhage, acute pulmonary congestion, and the congestion resulting from the use of ether in anesthesia. Its use in the last-named condition is especially important when much mucus is present, and when cyanosis, or blueness of the skin, indicates stasis from cardiac weakness or interference with oxygenation. It has for some time been the author's custom to apply a heating chest pack immediately after removing the patient from the operating table when the foregoing symptoms were present. More recently the plan of applying the hot and cold lung compress in cases in which an anesthetic is administered has been tested. When ether is employed, the application extends to the whole chest surface, as above described; when chloroform is used, a hot-bag is placed to the back and an ice-bag or a cold compress over the heart. The compress should be at least as large as the surface covered by the patient's two hands placed side by side. The cold compress

should be removed for a few seconds every ten minutes, and the surface rubbed with a dry, warm flannel till red, so as to maintain the cutaneous reflexes upon which this compress depends for its efficiency as a cardiac stimulant.

LONG EXPERIENCE JUSTIFIES THE USE OF THE HOT AND COLD PACK.

The author has made use of the hot and cold chest pack for ten years or more and believes it to be one of the most valuable of all means for combating pulmonary congestion. The circulation of the lungs is controlled by the vasomotor centers located at the upper portion of the dorsal region, and the purpose of the hot application is to stimulate the activity of these centers; while the cold application to the anterior portion of the chest causes first a contraction, and later active dilatation and fluxion of the vessels of the lungs, thus combating passive hyperemia and inflammation.

This is an excellent means of relieving acute congestion of the lung in pulmonary hemorrhages, and combating the hypostatic congestions which occur in fevers of a low type. The application may be continued for half an hour or more, and should be repeated two or three times a day.

This measure is of very great value for removing the pulmonary congestion which follows ether anesthesia, and thus combats the tendency to bronchial pneumonia, which is often a greater risk in old subjects than the operation itself.

A special form of the hot and cold compress is of particular service in asthma. An ice compress is applied to the back of the neck and head while a fomentation is applied to the whole front part of the chest, extending from the clavicles to the umbilicus. The back may be included. The cold application lessens the blood supply of the medulla, and so diminishes the excitability of the respiratory centers, while the fomentation relaxes the spasm of the bronchioles.

THE HOT AND COLD KIDNEY COMPRESS.

The hot application covers the back from the middle dorsal region to the coccyx. The cold application should consist of an ice-bag or a cold compress covering the lower third of the

sternum. The connection of the portal circulation with the renal vein makes it undesirable that any of its outlets should be closed or its tension raised by reflex impressions from the general abdominal surface. The fomentation diverts the blood from the branches of the lumbar artery which are distributed to the capsule of the kidney, and leads off a portion of the blood from the renal vein into the anastomosing muscular branches, while the cold application causes reflex contraction of the blood-vessels of the kidney and increases its activity.

This measure is of special service in cases of acute congestion of the kidney, especially in connection with acute febrile diseases, as scarlet fever, typhoid fever, small pox, and diphtheria. It should be used in connection with the hot blanket pack or other general hot applications in the intervals as a means of continuing the effect of the general hot application. Care should be taken that the patient does not become chilled by the cold application.

THE HOT AND COLD GASTRO-HEPATIC COMPRESS.

This compress influences not only the stomach and liver, but also the spleen and the pancreas through the intimate association of the circulation of these organs. The application is almost exactly the reverse of that of the renal compress. The fomentation is applied anteriorly from the fourth rib to the umbilicus, extending to the axillary line on each side, while a cold bag at least eighteen inches long is applied to the dorsal and lumbar spine. Through the dilatation of the branches of the internal mammary arteries and associated veins, the blood is drawn off from the stomach, liver, spleen, and pancreas, while the reflex stimulation of the controlling vasomotor centers contracts the vessels of the arterial circulation.

THE HOT AND COLD INTESTINAL COMPRESS.

The cold compress is applied over the whole abdominal surface, extending from the xyphoid cartilage to the pubes. The fomentation is simultaneously applied to the lumbar region and the left side, as it is desirable to divert the blood from the left kidney both by establishing collateral hyperemia of the overlying structures,

and also by diverting the venous blood from the kidney into the anastomosing muscular channels.

This procedure is of special value in chronic duodenitis and colitis.

THE HOT AND COLD PELVIC COMPRESS.

The cold compress is applied to the hypogastrium in combination with a fomentation across the lower part of the back. The fomentation may also profitably become a hip pack, or a hot leg and hip pack. When the inflammation is confined to one side, an ice-bag instead of the cold compress may be placed over the affected part. The ice-bag may be used in combination with the hot pelvic pack.

This measure is especially valuable in the treatment of acute inflammations of the uterus, pubes, ovaries, and bladder, in appendicitis and pelvic peritonitis. In cases of inflammation of the prostate, in proctitis, and cystitis, the ice-bag may be applied to the perineum in connection with the hip pack, or with the hip pack and the hot leg pack or foot bath applied simultaneously.

THE HOT OR COLD HEATING COMPRESS OR PACK.

This procedure differs from the hot and cold compress in the same way in which the ordinary heating compress differs from the cold compress. In the hot and cold compress the hot application is made continuous, or practically so, by the frequent renewal of the compress. In the hot and cold heating compress or pack the cold application is not renewed, but allowed to accumulate heat through reaction. The area covered by the cold application in this procedure is usually much greater than in the hot and cold compress. The duration is usually from one to two hours.

This procedure is especially applicable to the chest, the abdomen, and the pelvic region.

PHYSIOLOGICAL EFFECTS.

The hot and cold pack is, next to the hot and cold compress, perhaps the most powerful of all known means of controlling the movement of blood through the viscera of the chest and abdomen. The heating pack depends for its special features upon the ana-

tomical fact that the collateral relation between the arteries and the veins with internal parts does not closely coincide as regards the location of the related vessels in the skin, thus making possible the simultaneous application of two procedures differing in method, but each assisting the other.

The explanation of the effects of the hot and cold compress applies only in part to the hot and cold heating compress or pack. In the former, the action of the cold application is continuous or nearly so, while in the heating process the stimulant effect of the cold soon disappears, giving place, under the influence of the powerful reaction, to extreme dilatation, and great activity of the cutaneous vessels. As the heat accumulates, venous stasis is developed, producing powerful derivative effects upon the associated venous trunks, and thus by lessening the pressure in the veins, hastens the movement of blood through the arteries of the congested part. At the same time, the hot compress, being applied to a cutaneous area, the arteries of which are collaterally related to those of the deeper structures which it is designed to influence, produce powerful collateral anemia of the vessels of the congested organ. Several very powerful therapeutic factors are thus brought to bear simultaneously upon the diseased part, as follows:

1. By the application of the cold compress the vessels of the part are made to contract, thus forcing the stagnating blood onward into the veins.

2. As the heating compress warms and the cutaneous veins become filled with blood, the veins of the congested viscus are emptied, thus draining the tissues of the toxins which have accumulated in them.

3. By lowering the pressure in the veins, the arterial circulation through the affected part is facilitated, thus encouraging the nutrition and functional activity of the cells which are engaged in combating living germs, or which are seeking to repair damages which may have originated in any way.

4. The hot application diverts the blood into the cutaneous branches of the collateral arteries or into anastomosing vessels, thus preventing undue accumulation of blood and consequent embarrassment of the affected tissues. The anatomical relationships through which these results are attained have been described elsewhere.

THE HOT AND COLD CHEST BATH.

The chest pack is applied in the ordinary way. The form known as the square chest pack is preferable. After the wet pack has been adjusted and before the woolen wrapping is arranged, a spine bag filled with water as hot as can be borne safely (140° to 160°) is applied between the shoulders, reaching from the lower cervical to the lumbar region. The woolen wrapping is then brought snugly in place, and fastened in such a manner as completely to cover the back, leaving no openings about the neck.

THE HOT AND COLD ABDOMINAL PACK.

In this procedure the moist bandage is placed around the trunk at the level of the umbilicus in the usual manner for wet girdle. A rubber or aluminum coil is placed upon a wet towel just over the epigastrium. The blankets are then tucked snugly around the patient, and a stream of hot water is kept flowing through the coil continuously during the application, at a temperature as high as the patient can bear. The author has made use of this application ever since it was first suggested by Professor Winternitz, using instead of a coil, however, a rubber bag filled with very hot water, a thermophore, or a syphon sack.

USE IN VOMITING.

The hot and cold abdominal pack has rendered most valuable service in a great number of cases; and so positive and satisfactory have been its results in the hands of the author, that in his estimation it stands almost unrivaled as a hydriatic procedure in the certainty with which it produces the effects expected from it. This measure has proved especially successful in both sensory and motor disturbances of the stomach, especially in cases in which the patients complain of pain soon after eating, flatulence, eructations and regurgitations of food and vomiting of bile.

In one case in which a lady had suffered four months from regurgitation of bile into the stomach, being reduced to a very low state, the reflux of bile was at once controlled by the application of this pack. It was applied half an hour before each of the two daily meals given the patient, and was retained two hours, so that

the process of digestion was begun under the influence of the pack. During the first few weeks of the treatment the difficulty returned occasionally when the compress was omitted, but after a few months, the patient was able to dispense with the pack, and was not only entirely relieved of the distressing symptom, but had gained twenty-five pounds in flesh, and was restored to health. In another case a man had been afflicted for years in the same manner, having frequent attacks, lasting for several weeks, during which time vomiting occurred within a few minutes after each meal. The patient was taken to the Battle Creek Sanitarium in an extremely feeble condition. The hot and cold abdominal compress, however, controlled the vomiting in a few days, and the patient's stomach was soon trained to the digestion of a reasonable amount of wholesome and simple food. Scores of similar cases might be related.

Extreme nervous conditions of the abdominal sympathetic and of the solar plexus, also require the application of this powerful analgesic procedure. By its daily application for a few weeks, cases in which the ganglia are so sensitive that even very slight pressure excites almost excruciating pain, and in which as a result the abdominal viscera are subject to painful affections of various sorts, may often be made completely comfortable, other constitutional measures being of course employed at the same time. In nervous asthma and disturbances due to disorders of the abdominal sympathetic, this measure renders invaluable service, as may be also noted in the majority of cases of nervous headache, or migraine, which is likewise a sympathetic nerve disorder. Obstinate vomiting, nausea, including the nausea and vomiting of pregnancy, yield to this procedure with the most satisfactory readiness in nearly all cases.

The hot and cold trunk pack has been found of great service in cases of hyperpepsia and in hypopepsia attended by gastric irritation.

THE HOT AND COLD LUMBAR PACK.

This application is made the same as for the hot and cold abdominal pack, except that the hot bag or coil is applied over the lumbar region. A large square bag is used for this purpose. This application is of special service as a means of combating

portal or renal congestion. Care must be taken to apply the heat over the left kidney, as there is a direct communication between the left renal vein and the portal system.

THE HOT AND COLD SPINAL PACK.

A half sheet, one thickness, wrung out of very cold water, is placed about the trunk in the usual manner for the trunk pack. The patient then rolls to one side, and a long rubber bag half filled with hot water is placed in such a position that when he returns to the dorsal position, the bag will lie in contact with the center of the back its whole length. The blankets are then drawn around the patient in the usual manner.

This procedure is especially valuable in cases of spinal irritation which are aggravated by cold applications, and in which there is general passive congestion of the viscera of the chest and abdomen,—conditions present in a large proportion of cases of chronic dyspepsia, especially in women. In these cases there is generally an exceeding tenderness of the lumbar ganglia, of the intercostal nerves, and of the whole dorsal region. Hot applications to the spine usually afford temporary relief, but are exhausting and weakening when long continued or often repeated. Much better results are obtained by the application of heat and cold as described.

THE HOT AND COLD PELVIC PACK.

This measure is applied in the same manner as the ordinary cold pelvic pack, with the exception that a rubber bag filled with hot water, or a coil is placed over the lower abdomen next the wet sheet. The effect of this application is to afford relief in congestions of the pelvic viscera, in which it is as useful as is the hot and cold abdominal pack, in congestions of the abdominal viscera.

METHOD.

The mode of application is precisely the same as that of the ordinary pelvic pack, except that a hot water bag or coil is slipped in between the folds of the blanket with one thickness intervening, and so placed as to fall over the uterus and bladder.

THERAPEUTIC APPLICATIONS.

The hot and cold pelvic pack is indicated in hyperesthesia of the uterus, ovaries, and bladder, in acute congestion of any of the pelvic viscera, accompanied by pain or muscular spasm, as tenesmus of the bladder or rectum, and vaginismus. Painful ovarian congestion, congestion and hyperesthesia of the uterus, vesical irritation, ovarian irritation,—these and other like conditions indicate the employment of this useful measure, and are generally very readily relieved by it. Sexual erethism, irregular and painful menstruation, and the heaviness and indescribable but distressing symptoms with which so many invalid women suffer, yield to this remarkably efficient measure.

SPECIAL FORMS OF COMPRESS.

In addition to the various forms of compress which have been described in the foregoing pages, there are several special compresses worthy of description because of their great practical utility, and concerning which there are various practical points which need to be understood, especially in relation to the technique of their application. These are the cephalic compress, the chest pack, the throat compress, the neck compress, the joint compress, the cotton poultice, the hip pack, the pelvic pack, the leg pack, the foot pack, and the hot and cold compress.

The roller compress consists of a long strip of cheese cloth folded to three thicknesses, and of proper width. Thus prepared the bandage is rolled up. When wanted for use, it is immersed, wrung out quickly, and applied as soon as possible, so that its temperature may not be modified by contact of the air of the room. A number of such bandages of different widths should always be in readiness for use.

THE CEPHALIC COMPRESS.

The application is usually made to either the top or the back of the head. When applied to the back of the head, the upper part of the neck is usually included in the application. The application may be made to the top of the head and the face, to the face and the neck, or to the entire head,—scalp, face, and neck.

In the application of the cold cephalic compress it is necessary to bear in mind the fact that a cold application to the face may have the effect to produce collateral hyperemia of the brain, by contracting the external branches of the carotid artery. A napkin moistened with ice-water and laid upon the forehead may do more harm than good, by contracting the supraorbital branch of the internal carotid, and thus diverting more blood into its internal branches in the cerebrum. This effect may be readily antagonized by a cold application about the neck, which will contract the carotids and the vertebral arteries and all their branches, and thus aid the reflex action from the face and scalp in lessening the volume of blood in the brain.

These contrary and undesirable effects of cold applications are most likely to occur in conditions in which the vascular tension is low and fluctuating. They may give rise to local or circumscribed cyanosis from vascular spasm, and simultaneous collateral congestion.

In making cold applications for the relief of cerebral congestion, special care should be given to the eyes. The compress should always cover them, and should be well pressed down upon them, so as to utilize the powerful reflex relations which exist between the eye and the brain through the sympathetic.

The same principle governs applications to the hands and feet for relief of inflammatory conditions, involving deep structures. An ice-bag over the trunk of the artery supplying axilla, bend of elbow, groin, popliteal space will lessen the local congestion, as well as or even better than an application to the whole arm or leg; while an application to the part alone might produce collateral internal congestion.

PHYSIOLOGICAL EFFECTS.

The effects of the application of cold to the head have already been considered. It may be mentioned further that the head compress is less exciting and more sedative than the cephalic douche. Applied continuously, or frequently renewed, the prolonged cold head compress is highly sedative, lessening the cerebral blood supply, and diminishing the activity of the brain. In active congestion, a continuous very cold application is best; in passive congestion, it is better to secure vasomotor exercise and fluxion

of the brain by means of the repeated impressions obtained by frequent renewals of the cold compress, allowing only time for the beginning of reaction effects or slight warming of the compress.

The short cold compress increases the cerebral blood supply by reflex reaction effect.

The hot or warm cephalic compress, or fomentation to the head, congests the cerebral vessels when long applied.

A short hot application acts by revulsion to diminish the blood supply of the deeper parts.

THERAPEUTIC APPLICATIONS.

All forms of cerebral congestion, insomnia from cerebral hyperemia, the delirium of infectious fevers, and congestive headache, require the cold head compress.

The hot head compress, or fomentation to the head, excites cerebral activity, and is of great service in anemia in syncope, shock, and in collapse from any cause when associated with cerebral anemia.

The short cold compress, followed by drying and rubbing of the scalp, may be used in the same conditions. The hot compress is to be preferred when pain is present, because of its powerful and revulsive and analgesic effects.

Continuous cooling of the head may be secured by wetting the hair and allowing the head to remain uncovered. This mode of cooling, however, as also the use of the evaporating compress, is likely to give rise to rheumatic pains of the scalp, because of the long continued action of a degree of cold sufficient to chill by slow abstraction of heat, but not vigorous enough to induce reaction. The pain is doubtless due to disturbance of the blood supply of the nerve trunks.

The ice-bag applied to the back of the head is a valuable measure in spermatorrhea accompanied by frequent losses. The application should be prolonged. It should be applied before going to bed at night, being so adjusted as to rest against the base of the skull while the patient is asleep. In vaginismus, and in masturbation in women, due to sexual erethism, the ice-bag may be applied with advantage to the upper cervical for twenty minutes several times a day.

In anemic headache, the ice-bag may be applied to the upper part of the neck for one to three minutes. The reaction following increases the supply of blood to the brain. In nervous asthma, prolonged applications of the ice-bag to the back of the head will be found advantageous. For very rapid beating of the heart, apply the ice-bag for ten to twenty minutes to the back of the head or to the neck. A precordial compress should be applied at the same time.

Many of the above suggestions were taken from the lectures of Dr. J. H. Kellogg of Battle Creek, Mich., who is a valuable authority on this subject.

THE HAIR.

Color—Thickness—A Proper Brush and Comb—The Hair of Adults—What to Wash the Hair With—Cutting of the Hair—Treatment of Ladies' Hair—Don't Crimp and Curl the Life Out of the Hair—Blanching or Turning Gray—Albinism—Sudden Blanching of the Hair—Causes—Capt. Markham's Experience—Treatment for the Loss of Hair—Common Baldness—The Restorative of the Hair—Dyeing the Hair—Some Vegetable Formulas for so Doing and How to Apply Them.

The rapidity with which hair grows is subject to great variations, even among individuals of the same race. It is influenced greatly by the health of the individual, his occupation and age; in the young and middle-aged the growth is most rapid, and the same condition is seen in those living an active, outdoor life in preference to an indoor or sedentary one. The growth of the beard is undoubtedly accelerated by frequent shaving, and in a minor degree the cutting of the head hair has the same effect. A thorough stimulation of the scalp by rapid brushing morning and night is also conducive to the lengthening of the hair.

COLOR OF THE HAIR.

It has been found that the human hair contains three colors; yellow, red and black, and that all shades are produced by a mixture of these three colors. In the pure golden-yellow hair, there is only the yellow pigment; in the red hair the red pigment is mixed with more or less yellow, producing the various shades of red and orange. In black hair the black is always mixed with yellow and red, but the latter are overpowered by the black.

A fine head of hair has, in all ages of the civilized world, been

looked upon as an essential element to beauty. While it is not possible for every person to have an exuberant growth of head-hair, or of the beard, it is possible, with proper care and attention, for all to be the possessors of a respectable hirsutic covering. To secure this, in its greatest degree, the hair should receive proper attention and care, from infancy up. Campbell, though a poet, recognized this fact, for he says in one of his poems:

"To form a head of beauteous hair,
Children claim our greatest care."

"Cleanliness is next to Godliness," is an old aphorism, that might, to suit hirsutic hygiene, be changed so as to read "Cleanliness insures a good head of hair." Many parents are loath to wash or cleanse their children's heads. I often see babes in arms, with a thick, scurvy crust upon the scalp, through the neglect of the parents to insure proper cleanliness of the child's head; this crust, being left on for a time, irritates the skin, and an eczematous eruption ensues, giving us our scald-head, as it is popularly called. This condition of affairs should not be allowed to take place, and it would not, if proper attention were paid to the child's scalp. Washing the baby's head in lukewarm water, with castile soap, twice or three times a week, or oftener if necessary, should be practiced from birth up; then a daily brushing of the scalp and hair should be made. For a very young infant the softest brushes only should be employed; a rather harsh one to be used first, to loosen the dirt, dried sebaceous material, and epithelial scales from the scalp, and to brush it out, and then a soft, fine brush to polish the hair and make it lie smoothly upon the child's head. A fine comb should *not* be used on a child's head, and a coarse one would be of no special use except to part or lay the hair.

A PROPER BRUSH AND COMB.

In the purchase of a brush or comb, care should be exercised to see that a properly manufactured one is selected. It may seem like a little matter to attempt advice on so seemingly unimportant a subject, yet a great deal really depends upon it. "For want of a nail," you know, "the shoe was lost; for want of a shoe the horse was lost; and for want of a horse the officer was over-

taken and slain by the enemy." So, too, if you get a hair-brush or comb, with slivery bristles or teeth, or teeth too sharp, the scalp will be scratched by the one and the hair will be broken with the use of the other.

A proper brush is one made up of fine bristles, varying with the individual as regards the stiffness of them. The clusters should be evenly set into the back, equidistant from each other, so that the whole surface of the scalp, to which it is applied, will be touched by some one of the bristle bunches. Then the clusters should be made up of bristles of slightly unequal length, so as to still farther favor the brush in covering every portion of the scalp; by this means every hair will be rubbed down on all sides, and there will be no streaks or spots of the scalp left untouched.

A proper comb is one whose teeth are even and regular, with points not sharp, but rounded. It should be held up to the light so as to detect any splitting, or roughening of the teeth on the sides, for if they are so roughened, injury to the hair, through breakage of the shaft, will surely result. Should the teeth, through any cause become so split, as you value your hair, the offending members should be carefully cut from the comb; the slight space of the scalp that would thus remain untouched would be of no moment, as the comb is not an article that is used for cleansing purposes, as is the brush.

A word might properly be said here on the wire brushes now in use. In action they are really a comb, nothing more, nothing less. As to their promulgated virtues of magnetic influence on the scalp and hair, why, this is all nonsense. They are no better than a metal comb would be. However, as a stimulator of the scalp—that is by the friction of the teeth upon the scalp-surface a glow may be produced—if not used too harshly, they work very well, though are not equal to a good bristle brush.

THE HAIR OF ADULTS.

Men, as a rule, are more negligent of their scalps than the opposite sex, probably because it is so little bother for them to arrange the hair, that they overlook the brushing and washing of the scalp almost entirely. Now, the adult scalp should be thoroughly washed as often as once a month, at the very least; a

daily brushing will not suffice; brushing does not remove the oily particles from the scalp, except when dried down with dust and the scarf-scales of the skin.

WHAT TO WASH THE HEAD WITH.

One of the best cleansing substances I know of, for either male or female use, is the yolk of an egg. This should be well rubbed into the roots of the hair and upon the scalp; then the whole washed out with tepid water and castile soap, rinsing with clear cold water. This done, it should be thoroughly dried by brisk rubbing with towels, so as to get a roseate glow to the scalp, thus bringing a larger supply of blood to the hair papillæ; if found too dry a little pomade could be applied. The cocoanut oil is probably the best of any. Among the proprietary preparations Burnett's Cocoaine is probably the best, as it is made up almost entirely of cocoanut oil. Purified beef's marrow could also be made use of, though vegetable oils are the best to use, as they are less apt to become rancid than the animal oils.

TREATMENT OF LADIES' HAIR.

The general principles just announced should govern the ladies in the care they bestow upon their hirsute treasures. As they have from forty to one hundred miles of these possessions, it naturally follows that the care devolving upon them, for keeping them in proper healthful order, is greater than upon men. Still, wig-makers would ply less of a vocation if the few hygienic measures I have given, and those that follow, were heeded. As "fashion rules the world to a great degree," I cannot really expect that all of this advice will be very closely heeded. Yet, the hair should be brushed, rather than combed, daily; its "tangles" carefully unraveled, its split ends cut off, and when done up, it should be bound in as easy rolls and coils as possible; one reason for this is to allow as free ventilation as possible for the scalp, the other, that you may not break the hair or strain the roots, by tight tension upon them. Many a lady has lost a luxuriant head of hair by persisting in crimping it closely to the head, then binding it in coils, as tightly down as possible, thus severing the connection (partially it may be) of the hair bulb from its living

papilla at the bottom of the hair follicle, when death to the shaft is sure to result.

DON'T CRIMP AND CURL THE HAIR TO DEATH.

Again, don't crimp or curl it to death. Hair was never intended to sleep in worse than a straight-jacket—crimping irons—nor to be broiled or steamed on a curling-tongs that bear the temperature of the gridiron on which Biddy broils a steak. You must not blame your hair for rebelling at this cannibalistic treatment, in the way of becoming irremediably stiff, harsh, wiry, broken and stunted in its growth.

Don't bleach it out of its healthy color (should brown hair be the fashion when nature has made yours brown or black) by the use of strong caustics. You might as well try to bleach the healthy color from your lips, by unhygienic procedures, and then expect health to remain. The hair-bulb itself keeps pretty close watch on your maneuvers, and if you get to carrying your proceedings too far, ends up by tossing it all off from your head—about the same line of treatment your stomach adopts for ridding itself of a late supper of green cucumbers, lobster salad, fried oysters and fruit cake. After a time you may get your hair all back again, when so lost, but it is never so healthy and thrifty as before.

BLANCHING OR TURNING GRAY OF THE HAIR.

Hair turning gray is really but a process of living animal decay, which we call "the decline of the aged." As regards the scalp, the tone of the blood-vessels and nerves is lessened, and hence perfect hair-cell growth, either of coloring or formative matter, is impossible. The final result of all this is a gradual blanching of the color of the hair. Light hair is slower to make this change than the darker colored, from the fact that a maximum amount of coloring matter was never secreted, and hence the papillæ and pigment-making materials are not so soon exhausted.

Usually the beard is the first to show the approach of age, turning gray at its upper portion, near the ears, first of all. At about the same time the hair, over the region of the temples, begins to show the presence of "silvery locks." Creeping therefrom, the

whiteness extends up to the crown of the head, and down to the forehead, and with this there is apt to be a gradual loss of hair. Yet, by no means should it be understood that because the hair is gray it is always of lessened vitality, since for years it may grow as strong and luxuriant as when of brown or raven hue. The upper portion of the papilla, or that which gives the coloring cells to the hair shaft, is undoubtedly the seat of disease in these cases; the lower portion remaining free, of course the formative cells of the hair shafts are furnished in normal quantity, and hence the shaft preserves its growth in length.

The cause of the growth of white hair after burns of the scalp, or quite severe local inflammations, both in man and animals, is explainable on this same basis. The burn, or inflammatory action, has extended deep enough to destroy the top of the papilla, but not enough to implicate the base, and hence a white hair is the result. If we represent the papilla in the follicle diagrammatically by the letter A, then that portion above the cross-bar in the letter will represent the color-forming part of the papilla; that below, the hair-forming portion.

SUDDEN BLANCHING OF THE HAIR.

This is the third variety of disorders, and one, next to senile grayness, the most frequently seen. A part, or all, of the scalp-hair may be the portion blanched; though the more usual way is to have but a portion of the scalp showing the whitening of its hirsute covering. This is due, mostly, to some severe nervous disturbance, induced by either fright or disease. Some strange freaks of nature are observed in the matter of this sudden decoloration of the hair; for often, in a single night, or in the space of a few hours, or even moments, hair, which was formerly of a dark color, is changed to a silvery gray. Many of these cases are historical facts, as notably that of Marie Antoinette, the Queen of Louis XVI., whose magnificent tresses changed to gray in a single night (1791), when the royal party was arrested at Varennes. Another royal instance is that of Mary, Queen of Scots, whose auburn hair, through fright and grief, was changed to gray in the course of a few days.

It is also authentically stated that the hair of Sir Thomas Moore

turned gray on the night preceding his execution; and Dr. Parry related the instance of a Sepoy, of the Bengal army, aged twenty-four years, who was taken prisoner in 1858, and, while under examination, his hair, which was the jet black of the Bengalee, turned gray, all over his head, within the space of half an hour.

Very similar to this last is the case of a Mr. Anderson, a circus

Fig. 32. Follicle of human hair.

performer, and friend of one of my patients. His age was thirty-nine at the time of the sudden blanching of his hair. During an accident to one of the cages he got confined between a large bear, that had just broken out, and an elephant which he had made angry by giving it a mouthful of tobacco a little while previously. He was expecting immediate destruction, and his hair, which was quite dark, in the space of a few moments changed to gray, never to regain its normal color.

Turner relates the case of a young man, who had been seized by the king's guard, when holding a stolen interview with a lady of the Spanish court, and so incarcerated. This was a capital

offense, and it so terrified the man, when sentence was pronounced upon him, that in the same night his hair was turned to gray. The occurrence, however, was fortunate, as it saved him his life.

A German physiologist has observed that several of his delirium tremens cases, which he had in the hospital, have been affected with a sudden blanching of the hair. He examined the hairs under the microscope, and found that air was infiltrated throughout their substance.

Moreau records the case of a man, thirty years of age, losing by death a dearly beloved wife; on the morning following her demise his hair, through grief, was found white as snow.

CAUSES.

The nervous system is, undoubtedly primarily at fault, in most instances. In old age the nerves are among the first of the wheels of life to tire out, and break down; the many instances of blanching from fright and sorrow are also so many instances of perverted nervous action; even in the congenital cases it is the transmission of nervous (hereditary) impression from the parents to their offspring that leads to premature grayness. Among dyspeptics, too, gray hair is a common sign; and even here it is undoubtedly a reflex nervous action that induces the decolorization of the hair, rather than the non-digestion of the food, per se; of course the dyspepsia is the exciting cause.

CAPTAIN MARKHAM'S EXPERIENCE.

It is also quite well authenticated that cold weather, if prolonged, induces grayness of the beard. Capt. Markham, who once commanded a vessel on an exploring expedition to the Arctic regions, noted, as a curious fact, that those who were for a long period absent from their ship had their hair on their faces bleached nearly white. The loss of color was gradual, and, although noticed, was never alluded to, each one imagining that his companion's hair was turning gray from the effects of hardship and anxiety. It was only after their return to the ship that those possessing beards and moustaches discovered the change of hue

in their own hair. And yet the color gradually returned in about three or four weeks, after being less exposed to the inclement weather.

Somewhat akin to this is the fact that human hair also grows faster in summer than in winter; also faster by day than by night. All these conditions, I think, are clearly explained by the perverted nervous action induced by the cold and absence of the usual amount of daylight. The skin is shrunken by the action of the cold, and hence, from this, as a mechanical cause, less blood is brought to the scalp, less nutriment is supplied to the papillæ, and so grayness or blanching results.

The graying of the hair, as an effect of prolonged financial and business worry, may be explained in a similar way. Numerous instances are on record of the speedily turning gray of the hair after business reverses, the same as after grief following the loss of friends. Wearing of closely-fitting and illy-ventilated hats, especially in the house, or office, is another predisposing cause for early grayness.

Heredity also has much to do as a predisposing cause, though it is not so much the white hair factor that is handed down, as it is the perverted nervous influences, vitiated constitutions, scrofula, and the like, that are transmitted, and which speedily induce secondarily, early or premature grayness, or even albinism.

CONDITIONS WHICH INFLUENCE THE TURNING OF THE HAIR.

Neuralgia and nerve injuries are frequently followed by a turning gray of the hair upon the parts supplied by the diseased nerve. I have several ladies under my professional care whose neuralgic headaches (confined to the summit of the head) lasting, usually, two or three days at a time, are followed by a marked grayness of the scalp over the painful region, though the normal color returns after a few days. Dr. Anistie is himself a victim to the blanching of the hair upon the right side of the head, owing to persistent attacks of supraorbital neuralgia and migraine. There is no falling out of the hair, and in a few days, following the attack, the normal color is nearly or quite restored. Dr. Paget, in his "Surgical Pathology," relates the case of a lady, subject to

nervous headaches, who, on the morning following an attack, finds her hair, in spots, as white as if powdered with starch; in a few days the normal color returns again.

TREATMENT.

In a general way this is referable to two plans—preventative and curative. The blanching of hair from fright, the condition known as albinismus, and the progressive whitening from age would come directly under the first division, as curative agents are rarely of avail. The portion of the article dealing with the hygiene of the hair can be referred to as a matter of general preventatory treatment; to this should be added the inferences that may be drawn, from reading the many instances cited, of what should be avoided, so far as possible.

As to curative measures, a stimulating wash, such as:

Tr. cantharidis (tr. Spanish fly), 1 ounce.
Aceti destil. (distilled vinegar), 1½ ounces.
Glycerini (glycerine), 1½ ounces.
Spr. rosmarini (spirits rosemary), 1½ ounces.
Aquae rosae (rose water), enough to make 8 ounces.
M. S. Lotion, to be well rubbed into the scalp, night and morning, will be good to apply.

Frictions of the scalp, with a bristle brush, night and morning, bathing the head with cold water, and if the scalp be unduly dry and harsh, a dressing, like the following, will prove of service:

Olei cocois (cocoanut oil), 2 ounces.
Tr. nucis vomicae, 3 drachms.
Spr. myrciae (bay rum), 1 ounce.
Ol. bergami (oil bergamont), 20 drops.

As, in most cases, the nervous system is exhausted, remedies addressed thereto are of value. Nux vomica and phosphorus, combined with iron or arsenic, will be indicated. Cod liver oil is also an excellent adjuvant. There is a pill already prepared, in coated form, that is composed of phosphorus, 1-100 grain;

strychnia, 1-60 grain; carbonate of iron, one grain, that will prove as valuable as any extemporaneous formula. The compound phosphorus and quinine pill will also prove of value; this is composed of phosphorus, 1-50 grain; reduced iron, one grain; strychnia, 1-60 grain; quinine, 1-2 grain. Either of these pills can be given in increasing doses as occasion may demand. Of arsenic, the best form for administration is Fowler's solution, the following making a very eligible preparation:

Lq. potassii arsenitis (Fowler's solution), 1 drachm.
Tr. ferri chloridi (muriate tr. of iron), 2 drachms.
Tr. cinchonae comp., 2 ounces.
Tr. cardamomi comp. (comp. tr. cardamom), enough to make 4 ounces.
M. S. Teaspoonful four times a day.

If neuralgia is a prominent symptom, this must also be met by remedies calculated to overcome the cause; if this be found to be dependent upon carious teeth, a dentist should be consulted, and the offending members withdrawn; if upon uterine derangements, which is one of the most common causes for early graying of the hair in the female, these should receive their proper local and constitutional treatment; if upon some vicious cicatrix, a surgeon's services should be secured, and the irritation from the contracted cicatrix relieved.

Sulphur, administered internally, is thought by some to prove of benefit in supplying one of the elements for hair-growth to the waning papillæ. The yolk of egg, which contains sulphur and also iron, applied locally, is also of service; besides this it is oleaginous, and so supplies this element to a harsh-feeling scalp. An iron solution, applied to the hair, will also prove of service, as for instance, the following:

Ferri citratis (citrate of iron), 2 drachms.
Tr. nucis vomicae, 2 drachms.
Ol. cocois (cocoanut oil), 1½ ounces.
Spr. myrciae (bay rum), 1½ ounces

Gray hair, when the filaments are scattered, should be removed by the use of hair-dressing tweezers; as a rule these hairs so

treated do not return. If the hair is split at the ends, or inordinately long, it should be clipped back, and so save the drain upon the other parts of the scalp as much as possible.

But in spite of all treatment hair will turn gray when "old age" comes on.

The author is indebted for much valuable information in the preceding and following pages on this subject to the following authorities: Buckley, Neuman, Piffard, Fox, Leonard, Kaposi, and Hebra.

COMMON BALDNESS.

This is the form of hair-loss usually seen in young adults, or those just reaching middle age; if in the aged, it may occur in those whose hair has not previously turned gray.

As a rule, the light-haired individuals, from the fact that their hairs are finer, and hence more numerous to the square inch of the surface, are more prone to the loss of their head-covering than dark-haired persons.

The hair usually begins to come on the combing or brushing of it; finally, it will be found on the clothing in quite free quantities, showing that there is a pretty free involvement of the follicles of the scalp. It is usually seen in our busy, young business men, or in an overtaxed mother, or in a young lady of delicate constitution. The reason that ladies are not more generally subject to this annoyance is, undoubtedly, owing to the physiological fact that their bodies are less freely supplied with hair, and hence there is more hair-forming material furnished the scalp than in men. Another reason is that they are less subject to business worry, and do not heat their heads up continually with hats devoid of ventilation; the air gets more freely about the scalp and roots of a woman's hair than man's, from the fact that they less frequently cover their heads.

As a rule, a bald-headed father transmits his peculiarity only to his male offspring. It is also a noteworthy fact, too, that the tendency to baldness develops earlier in the life of each succeeding generation than the one preceding; thus, if the father was bald at thirty-six, the son will be pretty sure to be so at thirty-four, and so on.

CAUSES.

These are multitudinous. Sometimes it may be owing to abuse in dressing the hair, as crimping it too tightly, burning it with curling irons, or the use of irritatng coloring matters, and the like; or it may be due to the "old age" of the hair itself; for hair, as well as man, has its time of ripening, age, and death. When it becomes fully developed, and its life matured, it becomes contracted just above the bulb, and falls out; the life germ, of course, remaining to fill the empty follicle with new hair at no very distant time. Among the more usual exciting causes can be mentioned disease, enervating habits, mental worry, and loss of normal nerve nutrition. The worry of an accountant over his books, the merchant over his sales, the lawyer over his cases, the physician over his practice, the minister over his charge, all these are prominent factors in the cause of baldness. The reason is that there is not sufficient blood brought to the papilla of the hair-shaft, and hence the cell-formation, at the root of the hair, is not rapid enough to keep the hair follicle properly distended, so as it can perform its proper office of moulding the cells to the formation of a proper shaft; hence, at this interval, whether marked by ill-health or not, the follicle, through its circulary compressing fibres, strangles, or cuts in two, the mass of soft hair-cells, just forming into a hair-shaft, and the hair falls out as the result. Often there is a little bulb seen at the end of the hair, after it has been subjected to this choking off process; this has led some observers to say that the root has been thrown out; but this is not the case; were it so, then there would be no regrowth of the hair, for when the root is once destroyed, hair-life can never be regenerated in that follicle.

The loss of hair following fevers and other debilitating diseases takes place in much the same manner, and as the result of the weakened state of the forming papillæ, the regrowth is apt to be of different color or shape; after a time, though, when the hair-forming organs regain their usual vigor, the normal color is usually wont to return.

Loss of hair through head neuralgia, as is common to many of our ladies, is in the same manner. The proper amount of blood is not carried to the new cell-forming papilla, it is also vitiated, and

the nervous excitement, indicated by pain, causes a reflex contraction of the skin about the follicle, and hence the hair is girdled, and so falls out. Doubtless the change in color of the hair, through excitement, occurs from the same cause. When the excitement is calmed a normal blood circulation and nerve action ensues, hence the normal color-cells are secreted in their normal abundance, and, as a result, the color is restored. I believe the physiological action of the two to be similar, differing only in degree; if continued long enough, loss of hair would be the result. I have a patient under care now, a young married lady, with uterine disease, where the hair becomes very gray on the second morning following an attack of this head pain—at the top of the head—but in a day or two returns to its normal color (brown). If the pain were continued long enough I doubt not that the final result would be local baldness, through the malnutrition of the follicles. In proof of this I cite the following case:

Nayler gives an instance of a lady, in middle age, suffering from headaches, radiating from the temple to the crown, who had a total loss of hair over the seat of pain. In six months, after the neuralgia was cured, the hair grew rapidly again, though it was white in color; this gradually changed, however, to its normal hue.

Syphilis is also a well known cause for the loss of hair, though it is not the common cause, as is often asserted. For centuries the loss of hair following this disease was not noticed; thus, Brassa (1533) writes that "venereal symptoms have been observed which render it doubtful whether the disease is declining, or whether it has changed its character. The first of these symptoms is the falling off of the hair. One cannot help laughing at seeing men without beards, eyebrows or eyeleashed."

TREATMENT.

If you are an accountant take fewer hours at your desk, more in the open air; the hair makes a good barometer (in truth, aneroid barometers are made from hair) for the state of health, as well as of the atmosphere, and when you thus find it being progressively shed, look carefully to your occupation, to see if that is not the cause. If you are indoors a great deal, get in warmer friendship

with your gun, rod and line, and horse, or even take a relaxation trip. Don't wear your hat in the counting room or store; go bareheaded as much as you can, and have your hat a ventilated one. If you are using tobacco excessively, put the brakes on there; be temperate in all things, and above all secure a good night's rest; court sleep,

"Tired nature's sweet restorer,
That knits up the unraveled sleeve of care."

There is nothing like good sound sleep to recuperate the nervous system, for this is the system that is first out of order when the hair begins to fall. Leave your figures in your office; don't take them to bed with you to dream over; or if you are an inventor, or writer, don't make your bed room, your study room, or your meal time a convenient time for straightening out that kink, plot, or ledger discrepancy. Take three full hours every day to eat your supper, breakfast and dinner in, and a mile walk after each, if possible. All this done, and if yet you feel tired and exhausted, go to some physician who will look your case over for you, and see what organs are still at fault. The bowels should be kept regular, and for this purpose there is no remedy less harmless, or more to be depended upon, than one of the Rhamni, thus:

Fl. ext. rhamni Purshianae (cascara sagrada), vel (or)
Fl. ext. rhamni frangulae (buckthorn bark), 2 ounces.
Syrupi sim. (simple syrup).
Aq. cinnamomi (cinnamon water), aa. (of each) 1 ounce.
M. S. Dessertspoonful before breakfast, or three times a day if necessary.

Instead of this, oil, epsom salts, rhubarb, seltzer or Hunyadi water might be employed. As tonics, Peruvian bark and iron are among the best. The following is a very common prescription with me:

Tr. cinchonae comp. (compound tr. cinchona), 2 ounces.
Ferri citratis (citrate of iron), 3 drachms.
Tr. nucis vomicae (tr. nux vomica), 1½ drachms.
Vini Xerici (sherry wine), 3 ounces.
M. S. Teaspoonful one-half hour after meals.

Besides, the head should be kept in as cleanly and hygienic a condition as possible.

Among the many local applications that could be given, the following I have found to prove of great value:

Tr. cantharidis (tr. Spanish fly), 2 drachms.
Tr. nucis vomicae (tr. nux vomica), ½ ounce.
Tr. capsici (tr. capsicum), 1 drachm.
Ol. ricini (castor oil), 1½ ounces.
Aq. cologniensis (cologne water), 2 ounces.
M. S. Liniment. To be applied with a piece of sponge, night and morning after brushing the hair.

If the oil is an objectionable feature, as it is with some, bay rum (spr. myrciae) may be substituted. Cocoa oil and cocoaleine also make good substitutes.

A preparation of arsenic, given internally, is also of great benefit in most of these cases. It should not, however, be prescribed indiscriminately. The following makes a very eligible mixture, combining all other tonics with it:

Liq. potassii arsenitis (Fowler's solution), 1½ drachms.
Ferri citratis (citrate of iron), 2 drachms.
Tr. nucis vomicae (tr. nux vomica), 1 drachm.
Tr. cinchonae comp., q. s. ad 4 ounces (enough to make 4 oz.).

Prof. Erasmus Wilson recommends the following:

Lq. ammoniae (spr. hartshorn).
Chloroformi.
Ol. amygdalae dulcis (sweet almond oil), aa. (of each) 1 ounce.
Spr. rosmarini (spr. rosemary), 5 ounces.

This is to be rubbed into the roots of the hair, after brushing the scalp. Undoubtedly it is too strong for most scalps, and it will need to be diluted about one-half before applying. Cologne water, or rose water, may be used for this purpose.

Dr. Pincus suggests the following treatment in the first stage of premature baldness (This stage is recognized by a daily loss of under fifty hairs, by diminished sensibility to pressure, and, after a time, by commencing hardness and immobility of the scalp): a

solution of caustic potash, one part to five hundred of water, or fifteen grains of the bicarbonate of potash to an ounce of water. Two or three drachms of this solution are to be rubbed into the scalp from three to five minutes daily. After a time this may be done every other day, and then only once a week. If this is continued for a year or more, he avers, the baldness is arrested, and, in some cases, the lost hair is fully restored.

The following is also a useful lotion:

Liq. ammonii acetatis (spr. Minderus), 2 ounces.
Ammonii carb. (carbonate of ammonia), ½ drachm.
Glycerini (glycerine), ½ ounce.
Ol. ricini (castor oil), ½ ounce.
Spr. myrciae (bay rum), 5 ounces.
M. S. Lotion. Apply to roots of the hair, night and morning, with sponge, after brushing thoroughly.

The following is also a very good lotion:

Tr. iodinii comp. (compound tr. iodine), 2 drachms.
Tr. cantharidis (tr. Spanish fly), 2 drachms.
Spir. myrciae (bay rum), 1½ ounces.
Aq. cologniensis (cologne water), 2 ounces.
M. S. Apply to the bald portion of the scalp twice a day.

Pomades are sometimes ordered, but I do not like these, as a rule, as they mat the hair together more than lotions, and make it too greasy for the comfort of the user. Still, the following, when these features are not objectionable, will be very useful:

Tr. iodinii (tr. iodine), 2 drachms.
Pulv. cantharidis (powdered Spanish fly), ½ drachm.
Acidi tannici (tannic acid), 1 drachm.
Ol. bergami (oil bergamont), 20 drops.
Vaselini (vaseline), 2 ounces.
M. S. Apply to the head night and morning.

What has been said regarding the medical treatment of baldness in men, is equally applicable to the cases occurring in the opposite sex. Ladies, however, must forego the use of the crimp-

ing pins and curling iron, as well as the use of bleaching or coloring agents. The hair should be done up loosely or suffered to hang down undressed.

As the Manillians have the longest, blackest and most glossy hair of any nationality, and do not bind or curl it tightly to the head, but allow it to fall back behind, in its own natural looseness, it follows, that if our ladies would wish to preserve their hair as long as possible, that they should imitate the Manillians in this custom. The tonic systematic treatment is just as necessary in their cases as in the cases of men, and the preceding formulae are as good as any. Out-door exercise should be regularly taken; if family cares are crowding too closely upon them, a trip to the seaside will be beneficial. Worrying or fretting over any matter only makes the fall of the hair the worse, hence all this should be avoided as much as possible. Good, healthy, plain food only should be taken; eating of sweetmeats, late hours at the ball-room, and kindred enervating practices, should be abandoned, and a stay of eight hours in bed be taken each night, till the system becomes recuperated. In cleansing the head and hair, as it should be done every week or ten days, in summer time, less often in winter, there is nothing better than the yolk of an egg, beaten up in a little water, and rubbed thoroughly over the scalp and through the hair on a bit of sponge, and then the whole rinsed with warm water, and dried by pressing between cotton or linen towels. The ends of the hairs, if they split, should be trimmed off an inch or so and thus kept back until this tendency is overcome. In brushing the hair, only a soft brush should be used; but this used carefully will be found to bring a warm glow to the scalp, and thus materially aid recovery, for it is the aim of the whole treatment for baldness to quicken the sluggish circulation in the scalp.

Electricity applied with proper care, to the scalp by means of a wet sponge, one of the poles of the battery being placed at the nape of the neck, will also be found of service in stimulating the nervous action, and thus increase the amount of blood sent to each hair follicle and its papilla.

DYEING THE HAIR.

I do not really recommend the use of these various dyes, even in the many cases of early blanching of the hair; as regards my-

self, the sight of gray hair is not unpleasant. I rather like gray hairs; they are, in the aged, the emblems of wisdom; they remind us of hearts that have been steadfast amid all external changes and friendships, and which time and circumstances have not changed or weakened.

Almost all the so-called hair-dyes, which should more properly be called paints, depend upon the action of minerals for their blackening process. All of the patent right ones, with hardly an exception, contain lead in some form. A few varieties are made up of lead alone; these are absolutely harmless; those containing sulphur, or nitrate of silver, can be used so excessively as to be productive of hurt; yet, I think their dangerousness has been overrated, when they have been used in moderate quantities.

The following iron preparation will be found valuable to darken the hair, and it also has the advantage of being non-poisonous:

Sulphate of iron, 1 drachm.
Alcohol, 1 ounce.
Oil rosemary, 12 drops.
Pure water, ½ pint.
M. and apply frequently to the hair and scalp.

This preparation has another advantage, that of being of use when dandruff is present upon the scalp. By leaving out the oil of rosemary and alcohol, and putting in equal parts of water and cologne water, a very eligible preparation is formed. A wash very similar to this is a great favorite among the fashionable Parisians.

The following is said to give a good and natural-looking dye, free from the caustic action of silver salts and the poisonous effects of lead compounds. Two preparations are needed:

No. 1.

Citrate of bismuth, 1 ounce.
Rose water, 2 ounces.
Distilled water, 2 ounces.
Alcohol, 5 drachms.
Ammonia, q. s.
M. S. Apply in the morning thoroughly to the hair.

No. 2.

Hyposulphite of soda, 12 drachms.
Distilled water, 4 ounces.
M. S. Apply in the evening thoroughly to the hair.

Instead of waiting so long as this, the preparations could be applied, if necessary, an hour or so apart; the morning and evening alternate application is usually found the best. This dye is based on the chemical action of the reduction of the hyposulphate of soda by bringing it in contact with the citrate of bismuth, the result being a formation of the sulphate of bismuth. As red and blond hair contains sulphur in excess of the other colors, we know why such hair retains its color better than hair of other hue.

Nitrate of silver is probably as generally used as any of the salts of the metals (unless it be the acetate of lead) for producing a change in the coloring of the hair. Usually the strength of the solution is from five to ten grains of the silver to the ounce of water, as in the following:

Nitrate of silver, 10 to 60 grains.
Distilled water, 2 ounces.
M. S. Apply to the hair, wetting it thoroughly. Then let dry slowly by evaporating in the sunshine, or heated room exposed to the light.

If time is of importance, the darkening of the silver solution can be hastened by applying the following solution a few moments after the nitrate of silver is used:

Potassii sulphureti, 1 to 6 scruples.
Distilled water, 2 ounces.

This will make an almost instantaneous change to a black hue, if the silver solution has been first used. Where there are only streaks of gray here and there upon the scalp, a single application will be all that is required, till the hair is grown out quite a distance, so that the portion nearest the follicles will need color-dressing again. The objection to this dye is that it stains the scalp and

hands as thoroughly as it does the hair. To avoid this, great care should be used to protect the scalp, and gloves should be worn upon the hands during the application. A brush will probably be found the most convenient applicator.

The ordinary lead preparations are made up of the sugar of lead, ten to twenty grains to the ounce of water, as follows:

Sugar of lead, 40 grains.
Distilled water, 2 ounces.
Apply this to the hair thoroughly, and when about dry apply a solution of the sulphide of ammonium, about one-fourth the strength of the British Pharmacopœia solution.

The objection to the last compound is its very unpleasant odor. It gives though, an excellent brown or black color to the hair, according to the strength of the solutions employed, and does not stain the scalp.

The mercuric dyes are best represented by the following:

Corrosive sublimate, 12 grains.
Rose water, four ounces.
M. S. A poison. To be used with great caution and externally.

If there are any abrasions on the scalp this solution should not be employed, as enough of it might be absorbed to produce deleterious results. It is best applied to the hair by means of a brush dipped in the solution, and then thoroughly brushed through and over the hair. When it has become dry the following should then be employed:

Sodii hyposulphate, 1 ounce.
Water, 2 ounces.
M. S. Apply externally.

The same brush should not be used for making both applications. The solutions can be applied, one at night, and the other in the morning, for a few days, then once or twice a week, until the desired result is obtained. This is quite a slow-acting dye.

In the use of any of the above dyes, or indeed any of the following, the hair should be thoroughly cleansed from all oleaginous

material; this may be done by washing in toilet-soap suds, or by the free use of bay rum and cologne water, and then drying. After the dye is once "set," oil, cocoa-nut is the best, should be applied as a dressing to help bring out the color and the gloss; also to prevent too much drying of the hair.

Brown hair dye. Sometimes plumbic acetate and sulphur are combined together in one and the same solution, of the strength of the following:

Plumbi acetatis (acetate of lead), ½ drachm.
Sulphur sublimati (flowers of sulphur), 1 drachm.
Aquae (water), 4 ounces.
M. S. Shake well and apply night and morning for a week or so, then decrease the frequency of the application, gradually, to once a week, or once in two weeks.

This is a slow dye, yet one that answers fairly when there is not much grayness to the hair. It also is a very mild preparation. The deposit left upon the skin can be easily brushed off when it becomes dry. Like all of the head dyes it acts best upon hair of a reddish tinge, though gray hair is turned to a brownish color by it. Its effect upon light hair is to give more of a dark brown tint to it.

The following also makes a very good brown, and the tint can be darkened, as the fancy may desire, by a continued application of the two preparations:

Sulphate of copper, 16 grains.
Distilled water, 4 ounces.

M. Apply thoroughly to the hair, and when dry or nearly dry use the following:

Potassi ferrocyanidi, 16 grains.
Distilled water. 4 ounces.
M. Apply by means of a sponge or brush.

This last solution is poisonous, if swallowed in any quantity, and hence should be kept out of the reach of children; indeed so should *all* dyes. It does not stain the skin, and simulates, very

closely, the normal brown coloring given by nature, when applied to gray hair.

The following will also give a very good dark brown, and even black, if applied frequently enough:

Ammonia-nitrate of silver, 1 drachm.
Distilled water, 4 ounces.
M.

Care should be had not to bring this into contact with the skin any more than possible, as it will stain it. Its application should be followed, when the hair becomes dry, with the following:

Pyrogallic acid, 2 drachms.
Distilled water, 4 ounces.
M. Apply by means of sponge or brush.

The permanganate of potash may be used to give a light brown color to the hair; it should be used in the strength of from ten to forty grains to the ounce of distilled water. It makes but little discoloration of the skin, and is perfectly harmless. The brown color can be deepened, and even changed to a black, by using, alternately with the permanganate solution, the solution of pyrogallic acid just mentioned.

To dye the hair red. This is usually on the plan of bleaching a darker colored hair down to this color; though sometimes a true coloring principle is desired, as when gray, or light blonde hair is sought to be darkened to this color. The least harmful of all the dyes is the Persian Henna before described (see under the heading of black hair dyes).

Auburn hair is hair having a tinge of red, and this stage is sometimes reached in bleaching dark brown hair down to that of yellow, or blonde hue.

A strong infusion of saffron, to which has been added some carbonate of soda, if followed by an application of lemon juice or vinegar, will give a reddish yellow hue to dark-colored hair.

Bronzonette, whatever that may be, will, it is said, with the aid of spirits of wine, give a crimson coloring to the hair. Thirty

drops of the bronzonette to a couple of drachms of alcohol is the usual amount taken. As the color begins to pale, a new application of the alcohol will revive it considerably.

Some of the salts of antimony are also made use of, as the ordinary tartar emetic, in hair dyeing. Thus:

Tartar emetic, 1 drachm.
Pure water, 2 ounces.
Tartaric acid, 5 grains.
M. Apply with sponge to the hair.

Care must be taken that the scalp is not much wetted with this solution, lest enough become absorbed to vomit the individual. Its application is to be followed with a slution of ammonic sulphide, one part to four parts water. This works the best upon light-brown hair.

Yellow or "blonde" dyes. The Roman ladies used a very impure kind of soap, made from ashes and goat's fat mixed, for blanching their locks. A town in Germany—for the Germans are by nature blondes, or a light-haired race—called Matium, used to furnish this substance in balls to the Roman cosmetic-vendor, and hence the common name for the article was "mattic balls." Akin to this is the "potash treatment" so much in vogue with us today, when maidens will persist in washing their dark-colored tresses with strong soap-suds, or a weak solution of caustic potash, and then expose themselves to the sun. The blanching of the hair is obtained by this method, and is perhaps the least harmful of any, though more slow in its action than some. However, it is some form of chlorine or sulphurous acid, or nitric acid that is now most made use of for bleaching the hair. These agents work more rapidly than the alkalies (potash or soda), and are not so apt to injure the texture of the hair; they are used by our wig-makers to blanch the locks they are making up for sale.

A weak solution of the nitro-muriatic acid, as it combines both nitrogen and chlorine, is the better agent to employ. The strength of this will need to vary as the occasion may require; but starting with the weaker solution, whose strength can be increased after a time, frequently applied, will be the safer way; you must remem-

ber that in one sense you are killing the hair, that is its color, and hence caution is needed. A solution, somewhat as follows, would be well enough to start with:

Acidi nitro-muriatici diluti, 4 drachms.
Aquae, 4 ounces.
M. S. Apply by means of a sponge, and dry in sunshine, or by the aid of hot irons. It will not injure the skin.

The officinal *aqua chlorinii,* or chlorine water, might also be used in the same manner as the lotion just given to fulfill the same purposes.

As harmless, though perhaps not quite so effectual as some of the other dyes spoken of, is the following wash: After washing the hair thoroughly with a solution of alum, the strength not important, bathe it with a tea made of the annotta (the ordinary cheese-coloring produce), in which a little common baking soda has been dissolved. This application has to be made a number of times before much change is noted in the color, as it is very mild. If each application, when dry, is followed by a washing with vinegar, or water soured with lemon juice, the color will be deepened somewhat. It is only applicable for very light hair, as it contains no "bleaching" agent.

Stannic chloride, with a mordant of ammonic sulphide, will also turn the hair a yellow color, through the bleaching agency of the chlorine and sulphurous acid that is present in the two lotions. So also will the application of a solution of plumbic acetate, followed up with a mordant of potassic chromate.

All of these bleaching agents, if used excessively, are apt to leave the hair crisp and dry, or even to extend their ravages farther and so destroy the existing growth entirely.

MISCELLANEOUS.

Treatment of Ringworm—Treatment of Sweating of the Feet—When Spectacles Should be Used—Some Uses of Electricity in the Treatment of Diseases—Signs of Death — Neurasthenia — Neuralgia—Tic Douloureux—Hypochondria — Hysteria — Insomnia — Skin Diseases—Bronchitis—Pneumonia—Hay Fever—Green Sickness or Chlorosis—Jaundice — Appendicitis — White Swelling—Hemorrhoids or Piles—Aphthae—Thrush—Canker Sore Mouth—Burns and Scalds—Enlarged Tonsils — Broken Breasts—Toe-Nail, Ingrowing — Urine, Incontinence of, Retention of—Preparation of Bottled Milk—Vegetarianism—The Eruptive Fevers—Period of Incubation.

THE TREATMENT OF RINGWORM.

Dr. Saerlis recommends oil of turpentine for the cure of ringworm of the scalp. The hair should be closely cut over the affected part, and for a short distance around, and then turpentine is to be liberally applied, and rubbed in well with the finger. This is allowed to remain for about five minutes, and is then washed off with carbolic soap, and afterward with hot water, and the patch is then painted with dilute tincture of iodine, or with a two-per-cent. solution of iodine in turpentine. The application is to be made once or twice a day, and is not painful, though it causes a slight smarting. The writer asserts that he has cured, in ten days, by this method, cases of ringworm that have resisted all other modes of treatment.

TREATMENT OF SWEATING OF THE FEET.

Dr. Hebert gives the details of a method first suggested by Dr. Legoux, which he has found most efficacious for the relief of

sweating of the feet. For three days the feet are bathed, for half an hour at a time, morning and evening, in tar-water. At the end of the third day the foot-baths are omitted, and the soles of the feet are painted once a day with perchloride of iron. After four days more the epidermis of the soles is found to be dry and hard. Dr. Hebert succeeded in obtaining a complete cure by this simple means.

WHEN SPECTACLES SHOULD BE USED.

When we are compelled to remove small objects a considerable distance from the eye. When we find the light insufficient. When the object appears blurred, cloudy, or has a mist before it. When the letters of a book run together or appear double or treble. When the eyes become fatigued after reading or other exercise. These rules answer in many cases, but not always. Never choose a pair of spectacles when the eye is fatigued. Wait an hour or two, after you can be better suited. The tired eye needs rest, not glasses, and if they are purchased when the eye is excited or tired, errors are certain to occur in selecting the proper glasses. Wait patiently for an hour or two, or better still, three.

SOME USES OF ELECTRICITY IN THE TREATMENT OF DISEASES.

During the last decade, the uses to which electricity has been applied have been numerous, and while there is a difference of opinion as to the beneficial results from its use, the best physicians and surgeons of this country, as well as those across the water, are of the opinion that in a select number of cases the use of electricity supersedes all other methods of treatment.

The efforts of some enthusiasts to find in electricity a panacea for all human ailments is, of course, absurd, and has had the effect of creating a certain amount of prejudice against its proper use. There are three forms of electricity which have been utilized, viz.: The estatic or frictional form, galvanic, and faradic.

It is not within the province of this article to deal with the mechanical side of electricity, nor to go into the general therapeutic action of electricity upon the different forms of disease. In order for one to apply this remedy intelligently, it is necessary to be

familiar with the different forms, as well as the action of electricity upon both diseased and healthy tissues.

Probably the chief reason why it has not enjoyed a more extensive use in the past is on account of the incomplete construction of electrical equipment for medical uses, also the insufficient knowledge possessed by the regular physician as to its use.

It has been used by the charlatan, or quack, in a grand-stand method, and of course its use was necessarily limited, and did not receive the sanction of the medical profession until the last few years.

An eminent author and a practitioner in medicine for twenty-five years, has made a special study of electricity based upon physiological principles in the treatment of diseases, both in public institutions and in private practice. In connection with it, he has also found water, gymnastics, massage, manual and mechanical exercise, heat, sun-light, diet and other agents, to be of great utility in addition to medicines in accomplishing results. There are some forms of diseases in which one or more of the above will be found beneficial, and others in which a combination will achieve results.

A chronic invalid who has gone the rounds of a physician without any lasting benefit, is often willing to grasp at a straw, and in not a few hopeless cases, the above various remedies, mechanical and otherwise, intelligently applied, have relieved many a chronic invalid from a life of misery and wretchedness.

The single application of one remedy to some diseases is like trying to lift a large building with one jack-screw, while, in reality, a dozen or more is absolutely necessary to accomplish the result.

The application of electricity to diseases is so numerous and technical in its detail that the reader had better consult a physician who has given the subject more or less attention. It is in order that he may appreciate the uses of electricity that the above remarks are made in this work. There are a few diseases in which its application has been found very beneficial, for instance, for the relief of pain in the neuralgic joint. A mild galvanic current preceded by hot applications are among the most useful measures for this affection.

CERTAIN FORMS OF CHRONIC CONGESTION OF THE PELVIC ORGANS.

The good effects obtained from local electrical applications has been experienced by many suffering individuals. The applications of electricity to paralyzed and shrunken muscles, together with the application of cold water and friction has had a marked effect in increase in the irritability and circulation and nerve force in that particular part.

For the relief of pain in general the application of electricity renders most valuable service, together with the associations of heat. When the pain is neuralgic in character, a mild soothing current, combined with hot fomentations continued from fifteen to twenty minutes often causes powerful and gratifying results.

The application for the relief of headache due to congestion of the brain, in which the cold applications do not produce favorable results, applications of the galvanic form may be made to the head and back of neck with very excellent results.

When a tonic effect is desired, as in cases of anæmia, melancholia, and many other conditions in which there is a deficiency in the circulation of the blood to the extremities, the faradic current is generally found preferable.

The use of electricity in the treatment of diseases in which the ends of the nerves are affected, has the most extended use, as for instance, paralysis of the muscles which move the eye, also those of the face, and those of the shoulder and arm, neuralgia of the chest, which includes the muscles of respiration; the use of the electric current in these forms very often causes immediate relief.

The sciatic nerve, the principle nerve of the lower extremity, is probably most often affected of any of the larger nerves of the body, and disorder here is both painful and difficult to get rid of. Cold, wet, and overexertion of the leg are found to be the most frequent causes of this form of neuralgia. With the patient lying on the back, with the body lying upon it, the other electrode is applied along the different points in the course of the nerve, and gradually the current is applied with the latter electrode moving up and down as the points of pain would indicate, the applications being made daily or every other day. There is increase in the warmth of the part and a decrease in the pain with relief in not a few cases being permanent.

ELECTRICITY IN DETECTING FEIGNED DISEASES.

In addition to determining the presence, or absence, of nerve or muscle degeneration, and the discrimination between cerebral and spinal paralysis and the various types of peripheral palsy, it has been found of value in determining the length of time subjects have been dead. For instance, it is stated that muscular contractions produced by the faradic current cannot exist four hours after the subject is dead. Maligners often assume epilepsy and paralysis; a strong faradic current to the forehead or tibia, by means of a wire brush, applied to one feigning epilepsy, will cause intense pain to the false epileptic, but in the true epileptic, no pain will be felt.

Feigned anæsthesias may also be told by the faradic wire brush, attached to the negative reophore, the limb will quickly respond and show how much actual anæsthesia exists; it has also been found useful in motor paralysis.

There are some basic principles in the use of the different forms of electricity with which it becomes necessary to be more or less familiar. In hysterical patients where paralysis exists muscular reactions to either faradic or galvanic currents may be increased; in rheumatic paralysis electro-muscular contractility is, as a rule, more or less increased, although there are some exceptions.

In peripheral paralysis both faradic and galvanic reactions are altered after ten days has elapsed, the muscular contractility being lost early to a greater or less extent. No alterations in the electro-contractility of muscles is observed in any of the diseases confined to the posterior part of the spinal cord.

NERVOUS REACTIONS.

When exaggerated on both sides under a weaker current than in health, the probability is that there exists a central lesion; then again suppose a case of localized paralysis is thought to exist and the faradic and galvanic reactions of both nerve and its muscles are normal and exactly alike on both sides; we have then reason to believe that the existing case is either hysteria, some lesion of a higher spinal segment than that from which the nerve arises, or a lesion within the brain.

In unilateral paralysis, the muscles of the paralyzed side should be contrasted with those of sound side, and also the corresponding muscles. When both sides are impaired the standard of comparison is the sound patient.

SIGNS OF DEATH.

In the absence of a physician it sometimes becomes important that others shall be able to determine whether death has taken place or not. The occurrence of death can be recognized by the following signs: The breathing and pulse cease, the surface becomes pale, the muscles relax, the lower jaw falls a little, the "sight" of the eye becomes dull and glazed, the upper lid falls so as to partly cover the eyeball, and the whole body gradually cools to the temperature of the surrounding air and becomes rigid, while later decomposition sets in, and usually shows itself first by a green discoloration of the surface of the abdomen.

But it does not require the detection of all these signs to determine that death has taken place. The cessation of breathing and of the heart-beat is a safe basis for an opinion. It requires some care, however, to decide that there is no breathing or circulation. To test the former, a cold piece of polished steel—like a razor blade or table knife—can be held under the nose and before the mouth. If *no* moisture condenses upon it, it is safe to say there is no breathing. To test the cessation of the heart-beat, it is not enough to feel for the pulse at the wrist. The largest blood-vessel of the body runs directly down from the heart, along the left side of the spinal column, and its strong beating can be plainly felt in most people by pressing the finger tips firmly down toward the backbone, at the point below the breastbone called the "pit of the stomach." In this place the slightest pulsation of the heart can be felt if the walls of the abdomen permit the finger to get near the backbone, and here examination should be made before deciding that the heart has ceased to beat. Another test is listening over the region of the heart, in front of the left side of the chest. An acute ear can always detect the movement of the heart by sounds made by its valves, which, when perfect, sound like the syllables "ub-dup," "uf-dup," and so on. If careful listenings fail

to detect the heart sounds, and the cold metal fails to show any evidence of breathing, the individual may certainly be said to be dead.

When, in addition to these signs, paleness, muscular relaxation, a glazing eye, increasing coldness and rigidity come on, it hardly requires the onset of decomposition—the infallible sign—to prove beyond any possibility of doubt, that death has occurred.

The electrical battery may be used in doubtful cases. Electricity distinguishes with absolute certainty between life and death. Within two or three hours after the stoppage of the heart, the whole of the muscles of the body will have completely lost their electric excitability. When stimulated by electricity they no longer contract. If, then, when electricity is applied to the muscles of the face, limbs or trunk, after supposed death, there be no contraction, death has occurred. No faint, no trance, no stupor, however deep, can prevent the manifestation of electric muscular contractility.

But ordinarily it is very easy to decide between death and life; and the fear of being buried alive, which torments many people, is altogether without good foundation. The stories upon which it rests are such as an excited imagination might easily invent, and natural fear propagate, but they do not bear critical investigation. In certain European cities, for many years, the bodies of hundreds of thousands of those supposed to be dead have been placed in rooms where ingenious appliances and careful watching have been used to detect the slightest evidence of life, and in not a single case has a mistake been found to be made.

NEURASTHENIA.

Synonyms. Spinal irritation; nervous prostration; nervous exhaustion.

Definition. A debility of the nervous system, causing an inability or lessened desire to perform or attend to the various duties or occupations of the individual.

Causes. It may result from various chronic diseases; mental worry or emotion; overwork, as "whenever the expenditure of nerve force is greater than the daily income, physical bankruptcy

sooner or later results" (Jackson). Neurotic temperament; sexual excesses; alcohol; tobacco.

Symptoms. Nervous debility may affect any organ of the body. It is a condition of nerve-tire or exhaustion, and hence the nervous energy necessary for functional activity of any particular organ is wanting, a fair example being seen in cases of nervous dyspepsia.

One of the earliest manifestations of nervous exhaustion is an irritability or weakness of the mental faculties, as shown by inability to concentrate the thoughts, and efforts to do so causing headache, vertigo, restlessness, fear, a feeling of weariness and depression, together with the army of symptoms attendant on nervousness.

There may be occular disturbances, palpitation of the heart, coldness of the hands and feet, chilliness, followed by flashes of heat, followed in turn by slight sweating. Patients are also troubled with wakefulness, or when sleep does come, it is accompanied with unpleasant dreams, and is not refreshing.

It is of importance to determine between neurasthenia and other forms of nervous debility, due to organic diseases of the nervous system. These diseases are generally curable except when complicated with some form of mental derangement. The treatment is varied and important. Very often a change of scene is very desirable. If the patient lives in the country, a trip and visit in the city is often beneficial, while, on the other hand, if the patient lives in the city, a visit in the country, where the surroundings are pleasant, is very often just what is needed. In any event, remedies to build up the nervous system are always indicated, together with nourishing diet and relief, far as possible, from all mental and physical strain.

NEURALGIA.

Definition. A disease of the nervous system, manifesting itself by severe and sudden pain, of a sharp and darting character, mostly one-sided, following the course of some part of the nerve.

Varieties. There are some five or six varieties, located in as many parts of the body. First, of the face; second, of the head; third, of the neck and shoulders; fourth, of the back and ribs;

fifth, of the abdomen; and sixth, of the limbs, or what is known as sciatica.

Causes. Heredity; impoverished condition of the blood; malaria; syphilis; metallic poisons; anxiety; mental exertion, exposure to cold and damp; injuries of the nerve trunk.

The old axiom is considered true today, with regard to the cause of neuralgia, that it is "the cry of the nerves for pure blood."

TIC DOULOUREUX.

This is a very severe form of neuralgia, accompanied by sharp pain, darting and stabbing in character. Its most common location is over the eye and the side of the face. It is attended with an increased secretion of tears, twitching of the eye-lids, and often puffiness under the lids also.

The second form of neuralgia is paroxysmal also, and pain is severe; it is located generally in the back of the head, and also on one or both sides, and extends from the back of the head down to the neck and shoulder, and upwards around the face as far as the cheek.

The third form is also paroxysmal, the pain being severe, and burning in character. It extends from the shoulder down the arm, and along the side of the chest, while over the latter may be felt spots of tenderness.

In the fourth form the pain is very much the same, but located in a different place—along the back, extending along the spinal nerves, where they emerge from the spinal cord.

Treatment. Life is very seldom compromised by neuralgia, but when it is present, it causes intense suffering, and the general health may be seriously affected. When it occurs in early life, and there is no hereditary taint connected with it, the indications are that a recovery will take place. The treatment will depend upon the cause. Should the blood be impure, as is frequently the case, a liberal diet, with medicines to build up the system, such as quinine, iron and strychnine, as indicated in the following prescriptions: sometimes plasters are beneficial, also the electric current, and liniments, and very often hot water applied will give more relief, temporarily, than anything else.

HYPOCHONDRIA.

This is an affection of the nervous system characterized by the belief that one has some bodily ailment or disease. The patient has spells of moodiness. It is similar to melancholia.

Monomania, or insanity upon one subject, is another evidence of the same condition. Rheumatism, headache, mental stupor, lack of resolution, hysteria, are a result of the same cause.

Cause. A gradual loss of nerve control resulting from the irritating effects of indigestion and retained waste.

A lack of proper nourishment reduces the vitality and physical force below par, and the patient is unable to exercise proper control of himself. The brain becomes clouded and dull, and intelligent guidance is more or less disturbed, that is, the patient is unable to exercise proper control of his actions.

Treatment. The treatment suggests itself. It consists of attention to diet, digestion and elimination, also an abundance of pure water, fresh air, sunshine and proper exercise.

Drug medication may be required and should be prescribed by a physician. Chloral, the bromides and asafetida are probably the best remedies.

HYSTERIA.

As a disorder of the nervous system it is generally confined to women, usually occurring in paroxysms, but in very nervous women approaching a chronic state. A paroxysm may vary from moaning and gesticulation to violent struggling. There may also be slight twitching of the muscles, and in some cases general convulsive movements.

Consciousness is never wholly lost, and the paroxysm is believed to be more or less under the control of the patient, who, if instead of giving way to her feelings, would endeavor to control them, might possibly escape a paroxysm altogether.

Hysteria may, however, be developed during the course of an organic disease, when, owing to a weakened condition, the patient is less accountable for lack of self-control.

Treatment. A five-grain pill of asafetida taken three times a day will generally control hysteria.

Bromide of ammonia, 2 drachms.
Aromatic spirits of ammonia, 1 drachm.
Water, 4 ounces.
A dessertspoonful three times a day.

Muriate apomorphine, 1 grain.
Syrup, 4 drachms.
Water, 10 drachms.
A teaspoonful as required. Repeat in a few hours if necessary.

INSOMNIA.

Insomnia is a disease of the nervous system in which there is inability to sleep. This may exist alone or be connected with some other affection. It is a sign of disease even if there is no pain or other evidence of suffering. It may be the result of mental overwork.

Treatment. If an accompaniment of other disease, the treatment should be directed to the disease proper. If due to mental overwork, chloral or the bromides are the best remedies.

Of the chloral, 20 grains, well diluted in water, may be given at one dose; of the bromide of potash, 40 grains, also well diluted in water, may be given at one dose. Or better, 20 grains of each may be given together. If sleep is not produced in two or three hours, one-half the dose, 10 grains of each, may be given.

The patient should be as free from care as possible, should take out-of-door exercise, and give special attention to diet, elimination, etc.

A hot bath for twenty to thirty minutes before going to bed, often induces sleep.

Antipyrin, 1 to 2 drachms.
Syrup orange peel, 1 ounce.
Cinnamon water, 3 ounces.
One tablespoonful every hour or two until effective.

Bromide of potassium, 4 drachms.
Hydrate of chloral, 2 drachms.
Syrup wild cherry, 1 ounce.
Water, 3 ounces.
A dessertspoonful in a wineglassful of water at bedtime.

SKIN DISEASES.

Acne, Eczema, Hives, Scabies (Itch).

ACNE.

This affection of the skin is the result of an inflammation of the sebaceous glands. It most frequently appears about the time of puberty. It is usually chronic in character.

Cause. Authorities state that acne is accompanied with digestive disturbances and that it is often associated with chronic diseases—anemia, scrofula and tuberculosis are examples.

It is true that in many cases there may be no actual disease, yet there is some disturbance of digestion which results in a production of irritants in some form, and these irritants affect the terminal or outer ends of the peripheral nerves—those that supply the skin.

Symptoms. The oily secretion of the gland is retained, but the retention is attended with inflammation. Inflamed, ugly-looking pimples are the result. Pustules may occur among the pimples. In the pustular variety of acne pustules are the rule.

The face is the part most commonly affected, although the neck, back and shoulders may be subject to this eruption.

Sometimes the color of the secretion which clogs the ducts varies from a white or yellowish to a gray or black, the last two being the result of dirt which becomes mixed with the secretions; these are known as blackheads.

Treatment. Avoid fatty foods as much as possible. Keep the bowels open freely. Bathe the face often and thoroughly in good soap and hot water. Keep the face protected from wind and cold. The pimples should not be squeezed or pressed between the fingernails.

At night after bathing in hot water, dust on a little white precipitate and wash it off in the morning.

Sulphur, 2½ drachms.
Rose water, 1 drachm.
Make an ointment. Apply locally.

Sulphur, 2 drachms.
Pulv. tragacanth, 20 grains.
Spirits camphor, 2 drachms.
Liq. calcis, 2 ounces.
Distilled water enough to make 4 ounces.
Make an ointment. Apply locally.

In cases where the skin is oily, the following is recommended:

Sulphur, 2 drachms.
Spirits ether, ½ ounce.
Alcohol, 3½ ounces.
As a local application.

Especially applicable to blackheads:

Sulphuric ether, 1 ounce.
Carbonate of ammonia, 1 drachm.
Boric acid, 20 grains.
Water, 2 ounces.
Mix and apply locally two or three times a day.

ECZEMA.

This is a manifestation of a systemic trouble. The eruption is but a local manifestation of a constitutional disease.

Eczema may attack all ages and classes. There is a catarrhal inflammation of the corium, or deeper layer of the skin. First there is congestion of the vessels supplying the affected part, producing redness. In this variety there is a slight exudate from the swollen vessels, and when the moisture dries it forms in scales.

The scales are composed of the solid elements from the blood, of the new cells which have grown as a result of the increased blood supply, and of such other matter as may inhabit the skin where the exudate occurs.

There are several forms of eczema, as where it occurs in

papules or points, where the papules contain fluid, or where they contain pus. Sometimes the inflammation and exudate cause the outer layer of the skin to become detached and it is cast off, leaving the inflamed corium, or deeper layer of the skin, exposed.

This gives a red appearance, which differs from the other forms, as it is a deeper red. If the inflammation is severe enough, some of the small vessels may be ruptured and blood may form part of the exudate.

Cause. Any one having eczema must remember that his system is not in a healthy condition. More thorough elimination is needed and more attention should be paid to diet. In some cases, the use of alcohol may have been the starting point; in others, possibly tobacco. Their effects would be produced by their interference with digestion. Lack of exercise, too much hard work, laziness, or any other condition that tends to disturb the general health may produce eczema.

Symptoms. There is always itching and burning in eczema. The diseased area presents no distinct outline or border, but the redness fades gradually into the surrounding healthy skin. The papules or vesicles that occur in erysipelas may resemble those of eczema, but erysipelas presents greater swelling, more heat, and the color is a deep red, tense and shiny. The inflammation is deeper seated. There is fever and frequent pulse. Erysipelas may set in with a chill, there may be nausea, vomiting, an abscess may form, or in some cases there may be delirium.

Eczema presents none of these symptoms. The trouble is confined to itching, and sometimes a burning sensation, but the evidence is never severe.

Treatments. In those cases where vesicles form, or where there is much moisture present, the following prescription will be found most beneficial:

Salicylic acid, 10 grains.
Subnitrate of bismuth, 1 drachm.
Powdered starch, 1 drachm.
Vaseline enough to make 1 ounce.
Mix thoroughly, and apply two or three times a day.

This ointment will be found satisfactory in the treatment of most cases. Careful attention should be given to digestion and

keeping the bowels regular. Ten grains of salol should be taken three times a day.

2. Wash the diseased area with a solution of bicarbonate of soda, one or two tablespoonfuls to a quart or more of tepid water. Dry very gently and apply carbolated vaseline—5 drops of carbolic acid to 1 ounce of pure vaseline.

HIVES—NETTLERASH—WHEALS—URTICARIA.

All of these terms are applied to certain characteristic marks which appear in the skin following indigestion. The trouble is not dangerous. It usually occurs in children.

Cause. Indigestion and usually lack of elimination. As a result of indigestion, many irritants are present in the circulation.

These irritants cause dilatation in groups of small blood-vessels which supply the skin. This dilatation is the result of the paralyzing effects of the irritants upon the nerve fibers which control the size of the vessels. The dilatation is sudden, hence the rapid appearance of the spots, large or small.

The spots are usually light in the center, and a reddish or sometimes a bright red color around the border. They may vary from the size of a pea to a walnut, or be even larger.

Symptoms. The sudden appearance of the spots. They may disappear as suddenly as they came, and reappear in some other part.

With their appearance there is a tingling, itching and burning sensation. The spots are accompanied by digestive disturbances.

Treatment. A large dose of castor oil, salts, or Seidlitz salts, with careful attention to diet.

2. Salicylate of soda, $3\frac{1}{2}$ drachms.
Aromatic elixir, 4 ounces.
Mix. Dose for child five years old, one-third teaspoonful in water every three or four hours; for adult, one teaspoonful every three or four hours.

ITCH.

Itch is caused by an animal parasite which burrows in the skin. These parasites multiply very fast, producing intense itching. The affection generally occurs on the hands between the fingers.

TREATMENT.

1. Ammoniated mercury, 40 grains.
Sulphur, 3 drachms.
Vaseline enough to make 1 ounce.
Wash the hands, dry, and apply the ointment twice a day or oftener.

2. Sulphur, 2 ounces.
Lard, 4 ounces.
Mix and apply freely at night, washing it off in the morning.

3. Carbolic acid, 10 drops.
Water, 4 ounces.
Mix, and apply locally.

BRONCHITIS.

Bronchitis means inflammation of the mucous membrane lining the air tubes, but does not include the smaller tubes or air cells. Usually the inflammation affects only the large and medium-sized tubes. Chronic bronchitis may follow the acute form, or may result from other causes.

Cause. The cause of acute bronchitis is atmospheric changes, the same as those which produce other forms of catarrhal colds.

Symptoms. The symptoms are those of a common cold, which it accompanies. The catarrhal condition of the throat and nasal cavities extends downward into the air tubes. Headache is often present, there is a feeling of oppression and tightness in the chest, and cough begins as soon as the disease enters the bronchial tubes. At first the cough is dry, but later it becomes looser and expectoration is more profuse. There is usually some fever, and respiration is increased.

Treatment. If one is subject to bronchitis, he should pay immediate attention to a simple cold and try to prevent it from extending to the bronchial passages. If an acute attack occurs, the patient should be given a hot mustard foot-bath, and it is well to have the air of the room moistened with hot vapor, as steam from a kettle of boiling watetr. Bathe the throat and chest freely with camphorated oil and protect with flannels.

Chloride of ammonia, 2 drachms.
Fluid extract licorice, 2 drachms.
Water enough to make 3 ounces.
Teaspoonful every four hours.

PNEUMONIA

Pneumonia is an inflammation of a part of one or both lungs. It is seldom that both lungs are involved. The right lung is divided into three lobes and the left into two. An acute localized inflammation of one or more entire lobes is called lobar pneumonia. This is the form usually spoken of as pneumonia.

The affected portion of the lung becomes solid and firm, no air passing through it. Double pneumonia is usually fatal.

Pneumonia is an inflammation of the air cells, and cannot exist without producing bronchitis (inflammation of some of the smaller tubes), though bronchitis can, and usually does exist without pneumonia, the inflammatory process stopping before it reaches the smaller tubes and cells.

Cause. The irritation produced by any of the conditions which cause chronic bronchitis may assume an acute form and produce pneumonia. Pneumonia is always the result of an unhealthy system.

The blood contains an excess of irritants, and there is only needed an exciting cause, such as a cold, to precipitate acute inflammation of the lungs. Another cause for pneumonia is found in the double circulation with which the lungs are supplied, and the fact that nearly all the blood in the body passes through these organs once every minute.

Symptoms. The disease usually begins with a chill, followed by fever and pain, which is increased by the cough which develops. The temperature rises rapidly. At first the pulse is full and strong, but may show early signs of embarrassed heart action. Respiration is shallow and rapid. The cough is harsh at first, but soon a frothy mucus appears, which later becomes thick and tenacious. There may be headache, sleeplessness and delirium. With children convulsions may take the place of the chill.

Treatment. Send for the doctor at once. In the meantime put the feet in water as hot as can be borne, afterwards rub and dry

them thoroughly, put the patient to bed, cover warmly and keep quiet. Give hot herb drinks and apply hot applications to the chest—hot cloths or poultices of mustard or flax-seed.

HAY FEVER.

So called because it usually occurs during the haying season. The only difference between asthma and hay fever is that in hay fever there is a slight rise in temperature and a catarrhal condition of the eyes, nasal cavities, throat and air tubes of the lungs, but mostly in the air passages of the head. At first the mucous membrane may seem dry, but this is followed by an increase in the secretions. In some cases there is a profuse, watery discharge. Hay fever sometimes assumes all the seriousness of asthma.

Treatment. Change of climate affords the greatest relief.

Muriate of quinine, 4 to 8 grains.
Water, 1 ounce.
Use with atomizer.

Antipyrin, ½ ounce.
Syrup orange peel, 1 ounce.
Water, 3 ounces.
A teaspoonful once to three times daily.

SICK HEADACHE.

There is a variety of causes which may produce sick headache. Usually it is due to disturbances of digestion and is spoken of as bilious headache. Exacting mental labor, worry, or insufficient sleep may induce an attack of sick headache by interference with digestion or elimination. Defects of vision when glasses are needed, or the wearing of glasses which have not been properly fitted to the eyes, is the cause of much headache, and in case of severe eye strain, of sick headache. Irritation of the ovaries or womb is another cause of headache.

Treatment. Nervous headache. Hot pack, dark room, bed and something to quiet the nerves.

Sick headache. Hot water internally, or emetic.

BURNS AND SCALDS.

The danger arising from burns depends much upon the extent of the surface burned and the depth of the injury—if very extensive and deep, the patient may never rally; or if flame to any considerable extent has been drawn into the lungs, the probability is that the person cannot be saved. The teaching is that where a burn covers one-third of the surface, death is almost sure to follow.

The great danger from large burns is blood poisoning. All the tissues destroyed soon commence to decompose and many poisons are produced. These poisons are rapidly absorbed into the circulation, and this produces a condition of blood poisoning that may result fatally.

Treatments. In the case of a severe burn or scald, if nothing else is at hand, apply cold water immediately and but little inflammation will follow. If one is burned by spilling hot tea or coffee, do not wait to remove clothing, but dash cold water on at once. This will prevent the hot clothing from burning deeper and protect the skin at the same time. Lift the clothing and pour on more water, then remove the clothing and apply cold water by wetting cloths and laying over the surface. The cloths applied must be kept wet without removing them. Cold milk is better than cold water because it is thicker and offers better protection.

To secure benefit from this treatment it must be applied almost immediately—quickly enough to arrest the heat before the skin has been destroyed. Otherwise it will not be so valuable as lime water and linseed oil, baking soda and other treatments.

For pain following burns and scalds nothing gives greater relief than the application of cold sweet milk. This may be applied on a cloth frequently changed, or when possible, immerse the injured surface in a vessel containing the milk. The application should be continued until there is freedom from pain, and followed by dressings of some mild, soothing antiseptic.

2. If burn is severe, cover surface with dry baking soda, and bind lightly with a soft cloth.

3. Use equal parts of lime water and linseed oil. Saturate cloths and lay over the burn. Keep cloths wet by pouring on the solution. Do not take dressing off every day. If blisters form

open at base to let fluid out. Do not make a large opening. After heat is out, dry boracic acid makes a good application.

4. Apply distilled witch hazel every few minutes. This will stop all smarting, even in the case of a burn from hot grease.

5. Common washing soda or baking soda, three tablespoonfuls to a pint of water. Apply freely.

6. If clothes stick to the flesh do not tear them off, but flood the part with olive oil.

7. Lay on cloths wet in olive oil and laudanum. To heal burns, apply an ointment made as follows:

Vaseline, 1 ounce.
Oxide of zinc, 1 drachm.
Mix thoroughly and spread on linen cloths and apply to burns.

In case of scalds, exclude the air at once with soda and flour, covering the parts and keeping them covered.

WHITE SWELLING.

This form of inflammation is always chronic, and occurs only in those previously unhealthy. In recent years white swelling is understood to mean tuberculosis or consumption. Consumption is a degenerative change which usually occurs in the lungs, but may occur in any other tissue or part. Occurring in a joint, it may first affect the bone, the membrane surrounding the joint, or any other structure entering into the joint formation. The low form of inflammation present first results in an overgrowth of connective tissue; later the new tissue and more or less of the joint structure softens and degenerates, the ligaments become relaxed and softened, and there is deformity in proportion. In some cases a large amount of fluid may collect during the earlier stages; in others there may be early degeneration of some part of the membrane surrounding the joint. This results in an opening which may continue to the surface, forming a sinus, from which later there is a more or less constant discharge of pus.

In all cases the joint is swollen and the skin thickened and firmly adherent to the deeper structures as a result of the low form of inflammation which has existed for some time. There is no redness because the disease is chronic. Nutrition is more or less lack-

ing, circulation is poor, and the color is lighter than normal, hence the term white swelling.

Treatments. The treatment is both general and local. The local treatment consists first of rest. Plaster casts and other forms of splints are recommended by some and objected to by others. A common seat of the disease is the knee joint, and here extension is valuable as in the treatment of hip joint disease. If there is no improvement at the end of one month, most surgeons advise injecting into the joint some form of antiseptic solution, usually a 10 per cent. solution of iodoform in glycerine. Some advise injecting balsam of Peru. The iodoform and balsam combined make a most excellent disinfectant and local stimulant. In those cases where there is a large collection of fluid, it should be removed by an aspirator. This local treatment, while recommended, often fails to cure, and in some cases affords no relief.

The real treatment consists in improving the system by attention to diet, elimination, fresh air, etc. There is always more or less stiffening of the joint in which the disease occurs, as the result of the overgrowth and contraction of connective tissue, or the destruction of bone, tendons and ligaments, or of all combined.

The following liniment may be used, bathing the affected part, night and morning, rubbing the liniment in well.

Turpentine, 1 ounce.
Tinct. Spanish fly, 1 ounce.
Sweet oil, 1 ounce.
Laudanum, 1 ounce.

HEMORRHOIDS OR PILES.

Piles are tumors situated about the anus or just within the rectum. The former are external piles, the latter, internal piles. Both varieties may exist at the same time. In some cases these tumors break and blood is discharged from them, in which case they are spoken of as bleeding piles; if there is no discharge of blood, and they remain internal, they are spoken of as blind piles.

Cause. What seems to be an imperfection in the anatomical structure of the veins surrounding the rectum is the primary cause of this trouble.

The veins throughout the body and lower extremities are well

supplied with little valves which prevent a return of the blood, but for some unknown reason those surrounding the rectum are not thus supplied. The absence of these valves favors congestion, and the veins gradually bulge until small sacs are formed.

Everything that irritates the lower bowel, as strong physics, habitual constipation and any of the causes which tend to produce it, as straining at stools, etc., will cause an increase of blood in this part and a consequent congestion, and piles are the usual result.

Symptoms. Pain, often a burning sensation, and a protuberance of the pile. Usually there is hemorrhage, which may be slight or very profuse. If the hemorrhoids are large and remain internal, there will be a constant desire to evacuate the bowels, as the sensation is the same as though the mass consisted of fecal matter.

An examination will reveal the true condition.

Treatments. All conditions are benefited by the free use of intestinal antiseptics: 10 grains of the sulphocarbolate of soda, in tablet form, or the same amount of salol, either in tablet form or powder, should be taken four times a day.

To insure greater regularity of bowel movement, avoid meats and all heavy foods for supper. By eating light suppers difficulties of constipation are more readily overcome.

Local applications. The following ointment will be found of value in many cases of piles:

Vaseline, 1 ounce.
Nut-galls, pulv., 80 grains.
Pulverized opium, ½ drachm.
Mix together thoroughly, use after each movement of the bowels.

If the bowel comes down, put it back, carrying it up with the index finger as far as possible.

Cocaine hydrochlorate, 12 grains.
Iodoform, 1 drachm.
Extract opium, 30 grains.
Petroleum, 1 ounce.
Use as a salve.

APPENDICITIS.

The appendix is a narrow tube, usually from two to four inches in length, and in diameter about the size of a goose quill, or a little larger. It is situated in the abdominal cavity, rather low down and toward the right side. Appendicitis is inflammation of the appendix. Sometimes appendicitis occurs more than once in the same person, this is called recurrent appendicitis. If possible the appendix should be removed between the attacks.

Cause. The first cause of appendicitis is indigestion; following this is an unhealthy condition of the digestive tract. Constipation results, with the production of many poisons and irritating substances. This condition causes inflammation which extends along the digestive tract and into the appendix.

Symptoms. Sudden onset of pain in the abdominal cavity. Nausea and usually vomiting. Fever.

Treatment. A physician should be called at once. The patient should be put to bed and kept as quiet as possible.

All cases of appendicitis may be divided into three classes: First, those which are fulminating or gangrenous, and almost invariably result in death. Second, those which need a surgical operation. Third, those which get well, some permanently so, under proper medical treatment. In cases of this third class, the patient should be put to bed and absolute rest upon the back insisted upon. He must not rise to the sitting posture. An ice-bag should be placed over the appendix and such medicine given as directed by physician.

The patient should receive a diet of broths or beef-tea, instead of milk, as the latter is apt to cause fermentation and the formation of gas in large amounts in the intestine.

GREEN SICKNESS OR CHLOROSIS.

This is a term applied to a particular form of anemia, often distinguished by a greenish-yellow coloration of the skin. It occurs in young persons, chiefly girls about puberty. It is an anemic condition of a pronounced type.

Cause. Disturbances of nutrition beginning with indigestion and constipation.

Symptoms. The skin assumes a pallid hue, the flesh becomes flabby and the countenance, after the menses, which are either scanty or suppressed, has a greenish-yellow cast. There is no loss of flesh; instead the patient sometimes takes it on.

The feet and legs have a tendency to swell, the patient tires easily, has palpitation on slight exertion, the appetite is usually depraved, the digestion impaired and constipation the rule.

Gastric ulcer may occur, and consumption, especially in those predisposed, is a common result.

Treatment. The treatment consists in nourishing diet and every attention to the general health. Any of the following remedies may be taken to advantage:

1. Extract aloes, 1 drachm.
Sulphate of iron, 2 drachms.
Asafetida, 4 drachms.
Divide into 100 pills. From one to three pills three times a day.

2. Under the name of "Dewee's Emmenagogue Mixture," first devised by Professor Dewees of Philadelphia, the following formula has been largely used:

Tinct. chloride of iron, 3 drachms.
Tinct. catharidis, 1 drachm.
Tinct. ammonia guaiac, 1½ drachms.
Tinct. aloes, ½ ounce.
Syrup enough to make 6 ounces.
Tablespoonful three times a day.

3. Tinct. chloride of iron, ½ ounce.
Glycerine, 2 ounces.
Simple elixir, add to 4 ounces.
Give one teaspoonful after meals and at bedtime.

4. Fellow's syrup of hypophosphites, 5 ounces.
Maltine, or a good preparation of extract of malt, 10 ounces.
Shake the bottle and take a tablespoonful after meals and at bedtime.

5. Blaud's pills, 5 grains each.
Take one after each meal and at bedtime. Four a day.

JAUNDICE.

Jaundice is a condition resulting from obstruction of the bile passages. It is characterized by a yellow discoloration of the skin, preceded or accompanied by languor, and often with nausea. There is also a yellowish tinge to the white of the eye. Constipation is usually present.

Cause. The cause is congestion of the bile ducts; or the congestion may be confined to that portion of the duct that opens into the bowels. It is a catarrhal condition, and the catarrh is the same as may exist elsewhere. There is congestion, and a greater or less amount of mucus secretions collect in the tubes and obstruct the flow of bile. The catarrh may result from excessive eating followed by indigestion, from using too much alcohol, may be caused by malaria, or may be the result of taking cold.

Symptoms. The symptoms are nausea, loss of appetite, and slight fever. There may be diarrhea or constipation, usually the latter. There is a yellowish color to the skin, which also shows in the whites of the eyes. There may be more or less pain in the region of the stomach and bowels. The mind becomes dull and the patient is languid. The urine contains bile.

Treatments. An active cathartic should be given at once, such as a single dose of calomel of five to ten grains. The patient should diet for a few days and secure an abundance of fresh air. After securing thorough action from the calomel, the patient should take one teaspoonful of phosphate of soda dissolved in one-half to two-thirds of a glass of water. This should be taken one hour before each meal. The dose may be increased or diminished as found necessary. This remedy has a special action on the liver, will relieve the congestion and insure increased activity along the whole digestive tract. Tonics may be needed for a few days. For this purpose give the following:

Tinct. of gentian, 1 drachm.
Tinct. of columbo, 1 drachm.
Elixir of calisaya bark, enough to make 2 ounces.
Take one teaspoonful before meals.

ENLARGED TONSILS.

Sometimes the tonsils remain permanently enlarged. In this case it is better to have them removed. The operation is neither difficult nor painful. Until this is deemed necessary, either of the following may be used to advantage:

Treatments.
Chlorate of potash, ½ teaspoonful.
Sulphite of soda, 1-3 teaspoonful.
Put into a glass and fill with warm water Gargle the throat thoroughly with a tablespoonful of this solution from three to five times a day.

Also paint the tonsils once in two or three days with the tincture of iodine, using a small brush. To do this, take a spoon handle, or something of the kind, and press the tongue down so that the tonsils may be treated readily.

Iodine, 2 drachms.
Glycerine, 6 drachms.
Mix and apply daily with a brush.

BROKEN BREASTS.

The mammary glands for the secretion of milk in the breasts consists of ducts, ten or twelve in number each, called lactiferous, meaning milk-bearing. These ducts terminate externally at the nipple; internally, they branch into minute tubes like the roots of a tree. After delivery the increased nutrition that nature had previously secreted in the uterus is diverted to the mammary glands for the sustenance of the child.

Cause. If it happens that there is an excess of secretion in the breasts, the milk tubes become choked and distended with it. This may result in an inflammation of the glands, and in some cases the patient is subject to a sharp febrile attack, called milk fever. Inflammation may also result from checking the flow of the milk too early, from exposure, from mental disturbance, as worry, fright, or undue excitement; also from external injury or pressure from too tight clothing.

Symptoms. Severe local pain, increased by pressure, is caused

by the inflammation, and usually there will be found a hard swelling. The tendency is toward suppuration, the fever increasing with the formation of the abscess. If the abscess breaks the condition is known as "broken breast."

Treatment. Hot poultices, or heat in some form is most excellent treatment and always safe. Cold is also valuable if applied early. The first real evidence of inflammation of the breast is the presence of one or more small hard lumps. If a thin sack of ice is laid over the breast at this time and kept there, it will prove very effectual; in fact, applied early, it is the ideal treatment. There need be no fear about taking cold. A laxative should be given early. When poultices are used the applications must be thorough. Gradually increase the heat as long as can be borne. Change the poultices often, every five or ten minutes, depending upon the size.

TOE-NAIL, INGROWING.

This difficulty usually occurs on the great toe. In some cases it is very painful. In every case the condition is unpleasant and there is always more or less soreness and pain.

Cause. The edge of the nail either grows down into the tissues, or the tissue grows up over the edge of the nail; both conditions may be present.

Treatment. Very many cases may be benefited and often cured by taking a sharp-pointed knife and, by repeated strokes along the border gradually cutting through the nail, removing a strip from one-sixteenth to one-eighth of an inch in width, and sometimes more.

Where the nail grows down into the tissue it is not attached on either side, and by cutting through, the sliver of nail may be readily removed. This relieves the pressure, and for a time relieves the pain and soreness. If the trouble recurs, repeat the treatment. If successful the first time, it will be successful every time, and eventually the nail will stop growing in that direction. Some cases, however, need surgical treatment.

Henry Finch, M. D., reports, through the British Medical Journal, a method which he has followed in numerous cases with uniform success.

If a small, thin, flat piece of silver plate be bent at one edge into

a slight, deep groove and, after the toe has been poulticed twenty-four hours, slipped beneath the edge of the nail so as to protect the flesh from its pressure, and the rest of the thin plate bent around the side and front of the toe, being kept in position with a small portion of adhesive plaster passed around the toe, a speedy and almost painless cure will take place; and the patient, after the first day, is able to walk.

PREPARATION OF BOTTLED MILK.

From birth to the third or fourth month:
Milk, fresh, 8 tablespoonfuls.
Lime water, fresh, 2 tablespoonfuls.
Water, boiled, 30 tablespoonfuls.
Milk sugar, pure, 9 even teaspoonfuls.

From the fourth to the ninth month:
Milk, fresh, 16 tablespoonfuls.
Lime water, fresh, 2 tablespoonfuls.
Water, boiled, 22 tablespoonfuls.
Milk sugar, 9 even teaspoonfuls.

Amount to be given. Enough of either of these to last for the day should be placed in a clean bottle or fruit can, one that has been thoroughly scalded, the bottle or can placed upright in a vessel containing a few inches of water, and the water heated to the boiling point. The bottle should then be taken from the fire, cooled quickly and kept tightly corked in a cool place. The number of tablespoonfuls of the mixture put into the feeding bottle should be as follows:

For the first week, 2 to 3 tablespoonfuls.
Second to sixth week, 3 to 7 tablespoonfuls.
Sixth to twelfth week, 8 to 9 tablespoonfuls.
Third to sixth month, 8 to 12 tablespoonfuls.
Sixth to ninth month, 12 to 18 tablespoonfuls.

APHTHAE—THRUSH—CANKER SORE MOUTH.

This is a disease of the mouth in which small vesicles appear. These vesicles may ulcerate. If ulceration takes place, it is called

aphthae or thrush; if ulcertion does not take place, it is spoken of as canker sore mouth.

Causes. It is a disease of infancy and may follow a catarrhal condition of the stomach, or may result from a lack of cleanliness of the mouth. It may also be caused or influenced by indigestion and an unhealthy condition of the bowels. Also said to be caused by teething.

Symptoms. The child may refuse to nurse, and small vesicles appear in the mouth—on the tongue, gums, lips and mucous membrane of the cheek. The vesicles are first of a light color. If ulcers form they are quite painful. There is no odor. The child may worry a good deal and in some cases is quite troublesome.

Treatments. Regulate the stomach and bowels, give good ventilation, and wash the mouth with the following mixture:

Borax, powdered, 1 drachm.
Lloyd's hydrastis, 4 drachms.
Glycerine, 2 drachms.
Water enough to make 2 ounces.

Apply this with a soft cloth several times a day. The child's mouth should also be washed with a little warm water after nursing.

To regulate the bowels give the following mixture:

Carbonate of soda, 1 drachm
Wine of ipecac, 1 drachm.
Fluid hydrastis, 6 drachms.
Syrup of rhubarb, enough to make 4 ounces.

Dose. Ten drops to one-half teaspoonful twice a day, according to age.

The above is applicable either to the ulcerated or simple form.

URINE, INCONTINENCE OF.

This means an involuntary evacuation of the bladder, although it is generally understood to mean inability to retain the urine during sleep. This is a disease of childhood and is overcome with age, but may also be relieved by treatment.

Causes. Phimosis (a long prepuce or foreskin), adhesions of

the prepuce, intestinal worms, or oversensitiveness of the urethral tract. These and other causes are given, although in many cases there can be no cause discovered. Possibly some cases are due to a lack of development of the nerve fibres which supply the neck of the bladder, hence the constrictory muscle is not under proper control. Or, this nerve supply might be oversensitive, hence the pressure resulting from a distended bladder would allow or cause an involuntary passage of the urine during sleep.

Treatment. In the treatment of this trouble atropine has proven very successful. It is well to give a dose of santonine for one or two nights. If there are any worms present, it will remove them without trouble; if there are none, it will do no harm. Santonine is a remedy used by some for this trouble whether caused by worms or not, and is even claimed to be successful where atropine fails. If atropine is used, it should be given in several small doses frequently repeated, commencing two or three hours before the child goes to bed; or one large dose may be given. The small dose is preferable, as there would then be no danger of overdosing. For a child from five to ten years old, give 1-500 of a grain every hour until the pupil of the eye is well dilated, or until the face is flushed, and give at bed-time one grain of santonine and one grain of calomel. In some cases it is necessary to repeat the atropine for some days. If the two or three doses of atropine do not produce the symptoms mentioned, begin the treatment earlier the second day and continue until effect.

RETENTION OF URINE.

In most cases with infants, retention of urine may be overcome by giving liberally of a tea made of pumpkin or watermelon seeds. Sometimes the urethral tract in the new-born male child is not complete, i. e., does not reach the surface. In such a case the physician should make an artificial opening, being careful to have it meet the natural opening.

VEGETARIANISM.

An English physician in commenting on what we gain, from a health standpoint, by becoming vegetarians, makes the following statements:

"We lose most stomach complaints, such as indigestion, ulcera-

tion and cancer of this organ. I do not mean to say, that because you are a vegetarian you will lose all stomach complaints, but by adopting a non-flesh diet, the number of these complaints will be considerably lessened and their severity diminished.

"Fish, flesh and fowl are almost entirely digested only in the stomach, therefore, any one who adopts a non-flesh diet will lessen the work of the stomach, and by so doing lessens the liability to diseases of this organ.

"Rheumatism and gout are practically unknown to vegetarians and one who is subject to these diseases may overcome his trouble by adopting a proper non-flesh diet.

"Hardness of the arteries and tendency to apoplexy are greatly lessened by vegetarian diet.

"Obesity or stoutness is rare among vegetarians. Abnormal thinness is also unknown. This seems to be the rule, that the very stout are reduced in flesh and the very thin are brought up to a heavier standpoint.

"Liver troubles are rare among vegetarians, such as biliousness, jaundice, enlarged liver, shrunken liver and gall stones.

"Kidney complaints are uncommon, be they diabetes, albuminuria, stone in the kidney or in the bladder.

"Heart diseases are rare, such as valvular diseases, functional disorder, enlarged heart and tachycardia, which is known by the attacks of rapid beating of the heart. The heart of the vegetarian beats more slowly than that of the meat eater, and by this slow action the life of the vegetarian is prolonged. Dropsy and like troubles arising from the heart are also lessened.

"Nerve diseases are less frequent in vegetarians than in meat eaters. The vegetarian is less nervous, less sleepless, less irritable, less excitable and worries less than the average meat eater.

"Chorea, or St. Vitus' dance, is less often seen in vegetarian children than in those of meat-eating families.

"Anemia is less common among vegetarians than in meat eaters. Some doctors say that the green vegetables and the pulse foods contain iron in a state that can be used by the blood, and so this complaint is kept away.

"Goitre is not common in vegetarians.

"Skin troubles are greatly lessened, but not entirely banished by a non-flesh diet.

"Insanity is very uncommon among vegetarians. Drunkenness is practically unknown; infectious diseases are milder in kind and of shorter duration than among meat eaters.

"Cancer is all but unknown among vegetarians. The diet makes his teeth better, they last longer and he suffers less from neuralgia and toothache than flesh eaters.

"In fact, a vegetarian diet and observance of health rules add from ten to fifteen years to a person's life."

THE ERUPTIVE FEVERS.

SCARLET-FEVER.

Period of incubation, four to seven days or shorter.

Mode of onset, sudden; very often at night; sore throat; vomiting; convulsions in severe cases; high fever.

Eruption appears, at the end of first or during the second day.

Eruption fades in three to five days; disappearing first where it first appears.

Danger of contagion. So long as desquamation continues, or a purulent discharge from the ear or an abscess keeps up; indefinitely in clothing, toys, books, etc., which have not been disinfected.

MEASLES.

Period of incubation, eight to ten days.

Mode of onset, rather sudden; catarrhal symptoms; moderate fever.

Eruption appears fourth day; less commonly on third or fifth.

Eruption fades, in about four days.

Danger of contagion. So long as desquamation lasts.

GERMAN OR FRENCH MEASLES.

Period of incubation, two or three weeks.

Mode of onset, gradual; fever slight and transient; sometimes absent.

Eruption appears, the eruption usually the first symptom.

Eruption fades, in about four to six days without desquamation.

Danger of contagion. The duration of the liability to communicate the disease is not known.

SMALLPOX.

Period of incubation, ten to fourteen days.

Mode of onset, sudden; chill; high fever; headache; pain in loins, etc.

Eruption appears, on the third or fourth day; typical evolution, about the sixth day or the ninth of the disease characteristic pustules fully formed.

Eruption fades, desiccation at end of second week; crusts slowly separate, leaving marked and enduring cicatrices.

Danger of contagion. So long as crusts reform; indefinitely in fomites, etc.

VARIOLOID (MODIFIED SMALLPOX).

Period of incubation, ten to fourteen days.

Mode of onset, sudden; chill; high fever; headache; pain in loins, etc.

Eruption appears, third or fourth day; typical evolution, about the sixth day or the ninth of the disease, characteristic pustules fully formed.

Eruption fades, pocks do not go on to suppuration, but begin to dry up from the vesicular stage, that is, the sixth or eighth day of the disease.

Danger of contagion. So long as crusts form; indefinitely in fomites, etc.

CHICKEN-POX.

Period of incubation, about two weeks.

Mode of onset, sudden.

Eruption appears, at once and often in successive crops.

Eruption fades, in a few days; dessication, as a rule, without suppuration.

Danger of contagion. Duration of danger of contagion ends with the shedding of the dried crusts.

VERY VALUABLE PRESCRIPTIONS.

The following will be found to be very valuable prescriptions for the diseases for which they are intended. They are selected from those in use in the leading hospitals of Great Britain and the United States and also from those used by the leading specialists and general practitioners:

BRONCHITIS.

℞ No. 1.
Morphine sulphate, one grain.
Ammonia chloride, one drachm.
Fluid extract grindelia robusta, four drachms.
Syrup wild cherry, two drachms.
Mixture licorice compound, two drachms.
Teaspoonful for cough. Especially useful in acute bronchitis.

℞ No. 2.
Morphine sulphate, one grain.
Chloral, one drachm.
Syrup ginger, four drachms.
Mixture licorice, one fluid ounce.
Teaspoonful every half-hour until relieved. For spasmodic asthma.

℞ No. 3.
Cod-liver oil, two ounces.
Sugar, six drachms.
Acacia, four drachms.
Oil gaultheria, fifteen minims.
Water, to make four fluid ounces.

Emulsion of cod-liver oil. Mix the sugar and acacia thoroughly with one-half the amount of water until a uniform mucilage is

formed; then add the oil slowly, mixing constantly, and subsequently add the remainder of the water. It requires about an hour to make the perfect emulsion, to which may be added lacto-phosphate of calcium or phosphoric acid, which will give it an agreeable acidulous taste.

℞ No. 5.
Morphine sulphate, one grain.
Ammonia carbonate, thirty grains.
Syrup wild cherry, four drachms.
Mixture licorice compound, four drachms.
Teaspoonful in water for cough. Very useful when opiates can be used.

FOR CATARRH OF NOSE AND THROAT.

℞ No. 6.
Tincture aconite, one drachm.
Tincture belladonna, two drachms.
Three drops every hour.

℞ No. 7.
Cocaine muriate, six grains.
Bismuth subcarb., one-half drachm.
Talc., one and one-half drachms.
Enough to cover a silver five cent piece insufflated into each nostril every two hours.

℞ No. 8.
Chloroform, two drachms.
Glycerine, one ounce.
Brandy, one ounce.
One teaspoonful in water every three hours.

℞ No. 9.
Boracic acid, sixty grains.
Glycerine, twenty minims.
Water, six drachms.
Dissolve with heat and saturate cotton-wool, a thin sheet, with

the solution and dry. Pack the upper part of the nose with the prepared cotton, leaving a space below for breathing.

℞ No. 10.
Soda bicarbonate, one ounce.
Insufflate, or apply with finger to inflamed tonsil.

℞ No. 11.
Salicylate of soda, two drachms.
Borax, three drachms.
Glycerine, four drachms.
Water, enough to make six ounces.
A dessertspoonful in pint of water, used with spray or douche.

℞ No. 12.
Resorcin, five to ten grains.
Distilled water, two ounces.
Use with atomizer twice daily, four minutes each time.

CATARRH OF BRONCHIAL TUBES AND LUNGS.

℞ No. 13.
Ammonium chloride, three drachms.
Mucilage acacia, four ounces.
A tablespoonful four times daily.

℞ No. 14.
Ammonia carbonate, thirty-two grains.
Extract senega fluid, one drachm.
Extract squills fluid, one drachm.
Paregoric, six drachms.
Water, four drachms.
Syrup tolu, enough to make four ounces.
A teaspoonful every three or four hours.

℞ No. 15.
Syrup tolu, one ounce.
Syrup wild cherry, one ounce.
Tinct. hyoscyamus, one ounce.

Spts. ether compound, one ounce.
Water, one ounce.
A teaspoonful three times daily.

℞ No. 16.
Tincture opium, three drops.
Whisky, one ounce.
Boiling water, four ounces.
White sugar.
Take at bed-time.

GARGLES.

Gargles are useful only in diseases of the fauces. They cannot affect the nasal passages, or the lower pharynx or larynx. The preparations may be sedative, astringent, stimulant or antiseptic.

Sedative.

℞ No. 17.
Bromide of potassium, thirty grains to one fluid ounce water.

℞ No. 18.
Nitrate of potassium, twenty grains.
Chlorate of potassium, twenty grains.
Hot water, one fluid ounce.
Use as hot as it can be borne, as a gargle four times a day.

Astringents.

℞ No. 19.
Tannic acid, twelve grains to two drachms to one fluid ounce water.

℞ No. 20.
Alum, eight grains to one fluid ounce of water.

℞ No. 21.
Borate of soda, twenty-five grains.
Glycerine, twenty-five minims.
Tincture of myrrh, twenty-five minims.
Water, one fluid ounce.

Stimulants.

℞ No. 22.
Carbolic acid, two to ten grains to one fluid ounce of water.

℞ No. 23.
Chlorate of potassium, ten to twenty-five grains to one fluid ounce water.

Antiseptics.

℞ No. 24.
Permanganate of potassium, two to four grains to one ounce water.

VAPOR INHALATIONS.

An inhaler which is commonly used consists of a glass flask holding about a quart. This has a perforated cork through which two glass tubes are passed, one to the bottom of the flask to admit the air, and the other through which the patient inhales the vapor, into its upper part. In the absence of an inhaler an earthen tea-pot may be used.

The inhalations are prepared by adding a teaspoonful of the medicated solution to a pint of water at a temperature of about 150 degrees F., or as indicated by the formula. They should be used morning and evening for about five minutes each time, six respirations taken each minute. The vapors may be sedative, anti-spasmodic, antiseptic or stimulant.

Sedative.

℞ No. 25.
Tincture benzoin compound, one fluid drachm.

℞ No. 26.
Paregoric, one fluid drachm.

Anti-spasmodics.

℞ No. 27.
Nitrate of amyl eight minims to one fluid ounce.

Stimulant.

℞ No. 28.
Terebene, one drachm.

More stimulating and also antiseptic.

℞ No. 29.
Creosote, forty minims to one fluid ounce.

℞ No. 30.
Carbolic acid, thirty grains.
Chloride of ammonia, thirty grains.
Glycerine, one drachm.
Distilled water, one ounce.

℞ No. 31.
Tincture iodine compound, five minims.
Glycerine, one drachm.
Distilled water, seven drachms.

SPRAY INHALATIONS.

Spray inhalations are to be used by the physician or patient in full strength with the compressed-air atomizer; the aqueous solutions may be used in about double strength, by the steam atomizer. These applications are useful principally in treating diseases of the fauces and of the nasal cavities. The inhalations may be classified as sedatives, astringents and stimulants, hemostatics, and antiseptics.

Sedatives.

℞ No. 32.
Bromide of potassium, twenty grains to one fluid ounce.

℞ No. 33.
Carbolic acid, two and one-half grains.
Menthol, five grains.
Liquid albolene, one ounce.

Astringents and stimulants.

℞ No. 34.
Tannic acid, three grains to one fluid ounce.

℞ No. 35.
Sulphate of zinc, two to ten grains to one fluid ounce.

℞ No. 36.
Chloride of zinc, two to ten grains to one fluid ounce.

℞ No. 37.
Alum, ten grains to one fluid ounce.

℞ No. 38.
Morphine sulphate, four grains.
Tannic acid, thirty grains.
Carbolic acid, thirty grains.
Glycerine, four drachms.
Distilled water, four drachms.

℞ No. 39.
Carbolic acid, thirty minims.
Borax, one drachm.
Bicarbonate of soda, one drachm.
Glycerine, three and one-half drachms.
Water, enough to make four ounces.

CATARRH OF INTESTINES.

℞ No. 40.
Liq. potass. arsenitis, one-half ounce.
One or two drops before meals.

℞ No. 41.
Ext. hydrastis fld., one-half ounce.
Five to fifteen drops before meals, in water. To be continued some time.

℞ No. 42.
Tinct. capsicum, six drachms.

℞ No. 43.
Tinct. nux vomica, two drachms.
Two drops every four hours.

℞ No. 44.
Tinct. opium, sixteen drops.

℞ No. 45.
Bismuth subnitrate, two drachms.

℞ No. 46.
Syrup, four drachms.

℞ No. 47.
Cinnamon water, one and one-half ounces.
Shake bottle. Give one teaspoonful every two to four hours. For child one year old.

℞ No. 48.
Bismuth subnitrate, two drachms.
Pulv. ipecac compound, nine grains.
Divide into twelve powders. One every three hours for child one year old.

CATARRH OF THE BLADDER.

℞ No. 49.
Potassii citrate, one-half ounce.
Spts. chloroformi, two and one-half drachms.
Tinct. digitalis, eighty minims.
Infus. buchu, eight ounces.
Two tablespoonfuls three or four times daily.

℞ No. 50.
Copaiba, two drachms.
Spts. lavand. co., two drachms.
Mucil. acacia, one-half ounce.
Syrupi simp., three drachms.
Aquæ, four ounces.
A tablespoonful twice daily.

℞ No. 51.
Infus. buchu, seven ounces.
Potassii bicarb., one drachm.
Tinct. hyoscami, two and one-half drachms.
Ext. sarsæ. fl., four drachms.
Two tablespoonfuls three times daily. (In irritable bladder with acid urine.)

℞ No. 52.
Fol. hyoscami, one-half ounce.
Aq. bullientis, one pint.
Make infusion. A tablespoonful every half-hour for one forenoon, unless throat becomes dry or patient drowsy.

CHOLERA INFANTUM.

℞ No. 53.
Tinct. cocæ (1 to 5), one ounce.
Four to six drops every two hours at three months of age. Fifteen to twenty drops in older children.

℞ No. 54.
Salol, six grains.
Sacch. lactis, ten grains.
Divide into twelve powders. A powder every two hours for a child of six months.

℞ No. 55.
Hydrarg. chlorid. mit., three grains.
Cretæ præp., thirty-six grains.
Plumb. acetat., twelve grains.
Pulv. ipecac, three grains.
Divide into twelve powders. One every three hours.

℞ No. 56.
Tinct. opium, sixteen drops.
Aromatic spirits ammonia, one drachm.
Bismuth, subnitrate, two drachms.
Syrup, four drachms.
Chalk mixture, one and one-half ounces.

Shake well, give teaspoonful every two or three hours to child eight to twelve months old.

℞ No. 57.
Potassium bromide, two drachms.
Syrup, one-half ounce.
Peppermint water, one and one-half ounces.
A teaspoonful every hour or two.

℞ No. 58.
Castor oil, two drachms.
Pulv. acacia, two drachms.
White sugar, two drachms.
Tincture opium, twenty-one minims.
Cinnamon water, to make four ounces.
A teaspoonful every two or three hours.

COLIC.

℞ No. 59.
Aromatic syrup rhubarb, one ounce.
Tinct. cardamomi compound, one ounce.
Paregoric, one ounce.
Cinnamon water, one ounce.
Two to four teaspoonfuls.

℞ No. 60.
Magnesia carbonate, forty-five grains.
White sugar, one and one-half drachms.
Tinct. asafetida, one and one-half drachms.
Tinct. opium, one-half drachm.
Water, one and one-half ounces.
Five to sixty drops, according to age. In infantile colic.

℞ No. 61.
Tinct. opium, twelve drops.
Magnesia calcinate, twelve to twenty-four grains.
White sugar, one drachm.
Anise water, one and one-half ounces.
Shake well. One teaspoonful to a child one year old.

℞ No. 62.
Tinct. valerian, two and one-half drachms.
Spirits ether, one drachm.
Peppermint water, four and one-half ounces.
Syrup orange, one and one-half ounces.
Take half wineglassful. For an adult.

RENAL CALCULI OR GRAVEL.

℞ No. 63.
Diluted nitric acid, three drachms.
Diluted hydrochloric acid, three drachms.
Syrup orange peel, one ounce.
Distilled water, to make one pint.
A wineglassful three or four times daily.

℞ No. 64.
Ammonia benzoate, two to three drachms.
Syrup, one and one-half ounces.
Water, six ounces.
A tablespoonful two or three times daily.

℞ No. 65.
Strychnine, one grain.
Diluted nitric acid, one drachm.
Water, twelve ounces.
Two tablespoonfuls three times daily.

BILIARY CALCULI OR GALL STONES.

℞ No. 66.
Ether, three drachms.
Oil turpentine, two drachms.
A half teaspoonful on sugar every day, in the morning, gradually increased to one teaspoonful and continued until about a pound is taken.

℞ No. 67.
Olive oil, one pint.
To be taken in divided doses before breakfast.

℞ No. 68.

Soda bicarbonate, five drachms.

Divide into twenty powders. One powder three times daily for several months.

℞ No. 69.

Chloroform, two drachms.
Oil cinnamon, eight drops.
Spirits camphor, one and one-half drachms.
Tinct. opium, one and one-half drachms.
Spirits wine, three drachms.

Five to thirty drops in sweetened water every hour or two.

℞ No. 70.

Soda phosphate, one-half ounce.

Divide into twelve powders. One before each meal, continued for months.

℞ No. 71.

Magnesia carbonate, one drachm.
Borax, two drachms.
Citric acid, two drachms.
Boiling water, eight ounces.

A tablespoonful three or four times daily.

℞ No. 72.

Liquid potassæ, two drachms.
Infusi. buchu, eight ounces.

Three tablespoonfuls an hour after meals.

TONICS.

℞ No. 73.

Quinine sulphate, thirty grains.
Diluted sulphuric acid, to make solution.
Water, two ounces.
Tincture iron, one-half ounce.
Spirits chloroform, six drachms.
Glycerine, four ounces.

A teaspoonful three times daily.

℞ No. 74.
Iron and ammonia citrate, thirty-two grains.
Ammonia chloride, thirty-two grains.
Syrup, two ounces.
Anise water, two ounces.
A teaspoonful three times daily.

℞ No. 75.
Spirits chloroform, five drachms.
Dil. hydrochloric acid, two and one-half drachms.
Inf. cinchona, fifteen ounces.
Two tablespoonfuls three times daily.

℞ No. 76.
Tinct. iron chloride.
Syrup, one ounce.
Cinnamon water, two ounces.
A teaspoonful three times daily.

℞ No. 77.
Infusi. cocæ sacch., fify drachms.
Glycerine, five drachms.
Ext. cinchona fld., seventy-five minims.
Tinct. canella, one drachm.
Tinct. vanilla, forty-five minims.
Tinct. cascarilla, one-half drachm.
A tablespoonful three times daily.

DIARRHEA, CHILDREN.

℞ No. 78.
Pulv. ipecac, one-half grain.
Pulv. rhubarb, two grains.
Soda bicarbonate, twelve grains.
Divide into twelve powders. One powder every four to six hours to an infant one year old. In indigestion with acidity.

℞ No. 79.
Tinct. opium, sixteen drops.
Bismuth subnitrate, two drachms.

Syrup, one-half ounce.
Chalk mixture, one and one-half ounces.
Shake well and give one teaspoonful every three or four hours, to a child one year old.

℞ No. 80.
Salol, six grains.
Divide into twelve powders. A powder dry on tongue, followed by a sip of water, every two hours, to a child of six months.

℞ No. 81.
Magnesia sulphate, one drachm.
Tinct. rhubarb, one drachm.
Syrup ginger, one drachm.
Aquæ carui, nine drachms.
A teaspoonful three times daily to child one year old.

℞ No. 82.
Soda bromide, one-half drachm.
Mucilage acacia, one ounce.
Water, one ounce.
A teaspoonful every three hours for child less than one year old.

DIARRHEA, ADULTS.

℞ No. 83.
Paregoric, one-half ounce.
Spirits ether compound, one-half-ounce.
Ext. valerian fld., one-half ounce.
Oil peppermint, thirty drops.
Spirits lavender co., to make four ounces.
A teaspoonful every two or three hours.

℞ No. 84.
Morphine sulphate, one-half grain.
Hydrarg. chlorid. mit., one grain.
Pulv. camphoræ, one scruple.
Mucil. acacia, to form mass.
Divide into twelve pills. A pill every two hours.

℞ No. 85.
Ext. hematoxyli, one-half drachm.
Tinct. opium, two minims.
Water, two ounces.
A dessertspoonful three or four times daily.

℞ No. 86.
Tannic acid, fifteen grains.
Ext. krameria, one-half drachm.
Syrup, to form mass.
Divide into twenty pills. One to ten pills daily.

℞ No. 87.
Prepared chalk, two drachms.
Tinct. catechu, one-half ounce.
Tinct. opium, eighty minims.
Cinnamon water, eight ounces.
Two tablespoonfuls after each motion.

℞ No. 88.
Tannic acid, thirty-six grains.
Pulv. opium, four grains.
Divide into twelve pills. One pill every three or four hours.

℞ No. 89.
Aquæ camphoræ, three ounces.
Spts. lavend. co., one ounce.
Sacch. albi., one drachm.
A tablespoonful every two hours.

DROPSY.

℞ No. 90.
Vini colchici. sem., one-half ounce.
Liq. ammonii acetat., two and one-half ounces.
Infusi petroselini, five ounces.
Teaspoonful every four hours. Especially adapted to scarletinal dropsy.

℞ No. 91.
Spirits chloroform, twenty minims.
Tinct. digitalis, ten minims.
Infusion buchu, one ounce.
To be taken three or four times daily and followed by a good drink of water. In renal dropsy.

℞ No. 92.
Potassium bicarbonate, ten grains.
Iron and ammonia citrate, five grains.
Tinct. digitalis, ten minims.
Infusion buchu, one ounce.
To be taken three times daily. In cardiac dropsy with gouty tendency or debility.

℞ No. 93.
Pulv. digatilis, thirty grains.
Iron sulphate exsiccat., fifteen grains.
Pulv. capsicum, forty grains.
Pil. aloe and myrrh, two drachms.
Make sixty pills. One pill twice daily. In cardiac dropsy with flatulent dyspepsia and constipation.

DYSMENORRHOEA (PAINFUL MENSTRUATION).

℞ No. 94.
Potassium bromide, four drachms.
Chloral hydrate, four drachms.
Syrup, two ounces.
Water, two ounces.
Two tablespoonfuls to be used as an enema, as required, for pain.

℞ No. 95.
Antipyrin, two drachms.
Syrup tolu, two ounces.
Two teaspoonfuls at first; one teaspoonful every hour or two afterward until pain is relieved.

℞ No. 96.

Tinct. pulsatilla root, one-half ounce.

Two or three drops every two hours for ten days preceding the period.

℞ No. 97.

Liq. ammonia acetat., four ounces.

A tablespoonful every two or three hours with the following:

Pulv. ipecac, four grains.

Make twelve pills. One every two or three hours.

DYSPEPSIA.

℞ No. 98.

Soda sulpho-carbolate, four drachms.

Glycerine, two ounces.

Infusion quassia, six ounces.

A tablespoonful before meals. In flatulent dyspepsia.

℞ No. 99.

Bismuth subnitrate, four scruples.

Mucilage acacia, one ounce.

Soda bicarbonate, four scruples.

Infusion columbo, eight ounces.

Two tablespoonfuls before meals. Irritative dyspepsia with malnutrition and raw tongue.

℞ No. 100.

Tinct. capsicum, sixteen minims.

Tinct. nux vomica, two drachms.

Tinct. gentian compound, two ounces.

A teaspoonful in water three times daily, with grain 1-5 aloin at bed-time, avoiding starchy diet. For aggravated dyspepsia with constipation.

℞ No. 101.

Bismuth subnitrate, one drachm.

Soda bicarb., one drachm.

Pulv. cubebs, one drachm.
Pulv. ginger, one scruple.
Make twelve powders. A powder in wineglassful water before each meal.

℞ No. 102.
Tinct. opium, twelve drops.
Magnesia calcinate, twelve to twenty-four grains.
White sugar, one drachm.
Anise water, one and one-half ounces.
Shake bottle. One teaspoonful every two hours to a child one year old until relieved. If much pain add a little chloroform or Hoffman's Anodyne to the mixture.

INFLAMMATION OF THE BOWELS.

℞ No. 103.
Tinct. opium, one ounce.
Ten drops every second or third hour, according to age, to the point of tolerance.

℞ No. 104.
Liq. potassii arsenitis, fifty drops.
Tinct. opium, one hundred twenty drops.
Water, three ounces.
A teaspoonful before meals three times a day. In chronic form especially when malarial.

℞ No. 105.
Castor oil, one drachm.
Pulv. acacia, one and one-half scruples.
White sugar, one and one-half scruples.
Tinct. opium, three minims.
Cinnamon water, eleven drachms.
A teaspoonful every four hours for a child of one year.

℞ No. 106.
Pulv. opium, five grains.
Bismuth subnitrate, two drachms.
Make twenty powders. A powder every two to four hours for child of five.

EPILEPSY.

℞ No. 107.
Potassium bromide, one ounce.
Ammonia bromide, one ounce.
Ergot, fld. ext., one-half ounce.
Water, to make four ounces.
One teaspoonful, thrice daily. When maniacal excitement follows the attack, or cerebral congestion or hemorrhage if feared.

℞ No. 108.
Iron bromide, four grains.
Potassium bromide, one ounce.
Syrup, six ounces.
Water, eight ounces.
A teaspoonful twice daily. For anemic patients.

℞ No. 109.
Ext. conii fld. (Squibbs), two ounces.
Fifteen to sixty drops, not over three times a day.

℞ No. 110.
Nickel bromide, sixteen grains.
Distilled water, two ounces.
A teaspoonful several times daily, according to tolerance.

℞ No. 111.
Acetanilid (antifebrine), one drachm.
Spts. vini gallici, one ounce.
Syrup, two and one-half ounces.
A teaspoonful two or three times daily.

CARBUNCLE.

℞ No. 112.
Resorcin, one drachm.
Lanolin, one ounce.
Ointment. Apply after making multiple, parallel incisions into carbuncle.

℞ No. 113.
Calcium sulphide, three grains.
Ext. licorice, to make a mass.
Divide into thirty pills. One pill every hour or two.

℞ No. 114.
Tinct. muriate iron, one ounce.
Potassium chlorate, one drachm.
Glycerine, one ounce.
Water, four ounces.
A teaspoonful in a wineglassful of water every two hours.

℞ No. 115.
Nitrate of silver, four scruples.
Distilled water, four drachms.
To be applied two or three times on the inflamed surface, and beyond it on the healthy skin, to the extent of two or three inches.

℞ No. 116.
Linseed meal.
Boiling water.
Make poultice. Apply hot as bearable, cover with oil-silk, and renew when cool or dry at edges.

CHILBLAINS.

The following prescriptions to be applied externally.

℞ No. 117.
Carbolic acid, ten grains.
Cosmoline, one ounce.
Oil turpentine, one ounce.
Apply to affected part.

℞ No. 118.
Chloroform liniment, two ounces.
Apply with gentle friction.

℞ No. 119.
Tinct. iodine, one ounce.
Apply with brush.

SELECTED PRESCRIPTIONS.

Acute Nasal Catarrh.

Carbolic acid, eight minims.
Ichthyol, one drachm.
Dilute alcohol, two and one-half drachms.
Distilled water enough to make three ounces.

Use as a spray, by means of atomizer, two or three times a day.

Bromoform Emulsion.

Bromoform, one-half drachm.
Tolu tincture, one drachm.
Acacia mucilage, two drachms.
Syrup, four drachms.
Spearmint water enough to make two ounces.

Place the mucilage in a bottle, and add an equal volume of syrup, then add the bromoform and tolu tincture in portions, shaking well after each addition. A thin emulsion results, to which the rest of the syrup and the mint-water are to be added with agitation.

Take a teaspoonful four times a day.

Expectorant.

Tar oil, fifteen minims.
Horehound extract, one-half drachm.
Anise oil, one minim.
Whisky, one ounce.
Clarified honey enough to make two ounces.

One-half to one teaspoonful several times a day.

Influenza.

Quinine salicylate, three grains.
Phenacetin, two and one-fourth grains.
Camphor, two to five grains.

Six of such doses in twenty-four hours.

Cough Syrup—Prize Formula.

Codein, one hundred grains.
Benzoic acid, two drachms.

Chloroform, five drachms.
Peppermint oil, one drachm.
Fl. ext. ipecac, six and one-half drachms.
Fl. ext. tolu, three ounces.
Fl. ext. licorice, one and one-half ounces.
Fl. ext. wild cherry, two and one-half ounces.
Glycerine, two ounces.
Tar water, saturated, fifteen ounces.
Alcohol, twenty ounces.
Distilled water, two and one-half pints.
Sugar, four pounds.
Caramel, q. s.

Dissolve benzoic acid and oil in alcohol, and mix with other ingredients except the sugar, chloroform and codein, and let stand twenty-four hours; filter and dissolve codein and chloroform in filtrate which pass through a percolator containing the sugar, and add water sufficient to make one gallon.

Take dessertspoonful every three hours.

Flatulence.

Creosote, ten minims.
Bismuth subcarbonate, two drachms.
Glycerine, one ounce.
Peppermint water, one ounce.

One teaspoonful every three or four hours; or

Saccharin, one drachm.
Pulv. wood charcoal, two drachms.
Bismuth subnitrate, two drachms.

Divide into twelve powders. One powder to be taken half an hour before each meal.

Family Liniment—Prize Formula.

Camphor spirit, one ounce.
Opium tincture, one ounce.
Chloroform, four drachms.
Ammonia spirit, four drachms.
Peppermint spirit, four drachms.
Capsicum tinct., four drachms.

Sassafras oil, four drachms.
Alcohol enough to make thirty-two ounces.
For use externally as liniment.

Diabetes Mellitus. (Sugar in urine.)
Dried eucalyptus flowers, four drachms.
Water, six ounces.
Make an infusion. One such draught to be taken twice daily.

Shampoo Jelly.
White castile soap, four ounces.
Hot water, sixteen ounces.
Glycerine, four ounces.
Lavender oil.
Bergamot oil.

Massage Cream.
White wax, one-half ounce.
Spermaceti, one-half ounce.
Cocoanut oil, one ounce.
Lanolin, one ounce.
Oil of sweet almonds, two ounces.
Melt in a porcelain dish, remove from the fire and add:
Orange-flower water, one ounce.
Tincture of benzoin, three drops.

Mumps.
Sulphate of magnesia, four drachms.
Water, four ounces.
Antimony and potassium tartrate, one grain.
Sweet spirits of nitre, three drachms.
Sugar, six drachms.
A teaspoonful every three hours, after the bowels have been well moved. With flaxseed poultices locally.

The following formulas are given as being practically the same as those contained in the so-called patent or secret formulas having an extensive sale:

Allen's Lung Balsam.

Blood root, tincture of, two ounces.
Lobelia, tincture of, two ounces.
Opium, tincture of, one ounce.
Capsicum, tincture of, three drachms.
Sassafras, essence of, two drachms.
Anise, essence of, two drachms.
New Orleans molasses, one pint.

Bring the syrup to a boil, add slowly the other ingredients and mix.

Ayer's Cherry Pectoral.

Acetate morphine, three grains.
Bloodroot, tincture of, two drachms.
Antimony, wine of, three drachms.
Ipecac, wine of, three drachms.
Wild cherry, syrup of, three ounces.

Mix together.

Ayer's Hair Vigor.

Lead, sugar of, three drachms.
Sulphur, flour of, two drachms.
Glycerine, fourteen drachms.
Water, five pints.

Ayer's Sarsaparilla.

Sarsaparilla, fld. ext. of, three ounces.
Stillingia, fld. ext. of, three ounces.
Yellow dock, fld. ext. of, two ounces.
Mayapple, fld. ext. of, two ounces.
Sugar, one ounce.
Potash, iodide of, ninety grains.
Iron, iodide of, ten grains.

Mix together.

Parke-Davis' Uterine Tonic.

Each pill contains:
Viburnum prunifolium, one grain.
Viburnum opulus, one grain.
Star grass, one-half grain.

Helonias, one-half grain.
Squaw vine, one-half grain.
Caulophyllum, one-quarter grain.

Take one three or four times a day whenever there is headache, backache, and a dull pain and feeling of weight in the pelvic organs.

Warner's Safe Kidney and Liver Cure.

Lycopus virgin (the herb), extract of, three hundred and eight grains.
Hepatica, extract of, two hundred thirty-two grains.
Wintergreen, extract of, seven and one-half grains.
Saltpetre, thirty-nine grains.
Alcohol, two and one-half grains.
Glycerine, ten drachms.
Water sufficient to make one pint.

Mix all together, and let stand for one week. Filter if necessary.

Winslow's Soothing Syrup.

Morphine, sulphate of, one-half grain.
Soda, carbonate of, one grain.
Simple syrup, one and one-half ounces.
Pure water, one-half ounce.
Fennel, spirits of, one drachm.

Syrup of Figs.

Senna leaves, one and three-quarter ounces.
Coriander seed, six drachms.
Figs, three ounces.
Tamarind, two ounces.
Cinnamon bark, two ounces.
Prunes, one and one-half ounces.
Licorice, extract of, one and one-half drachms.
Peppermint, essence of, one and one-half drachms.
Simple syrup, one pint.

Thompson's Eye Water.

Zinc, sulphate of, five grains.
Copper, sulphate of, one and one-quarter grains.

Saffron, tincture of, one-half drachm.
Camphor, tincture of, fifteen drops.
Rosewater, two ounces.
Pure water, two ounces.

Mix together and filter through filtering paper kept by druggists.

Buckley's Uterine Tonic.

Each pill contains:
Helonin, one-sixth grain.
Caulophyllum, one-sixth grain.
Macrotin, one-sixth grain.
Hyoscyamin amorphus, one-two-hundred-fiftieth grain.

Take one pill every three hours, or four times a day. If the throat becomes dry, or the face flushed, it is evidence that the dose should be lessened. If these symptoms do not appear, the amount can be increased if desired.

This prescription gives most satisfactory results, and has been used by many noted physicians.

Beecham's Pills.

Saffron, one grain.
Sodium, sulphate of, one grain.
Rhubarb, four grains.
Aloes, twenty grains.

Mix, and make into three-grain pills.

Boscheen's German Syrup.

Tar, oil of, one drachm.
Ipecac, fluid extract of, one-half ounce.
Wild cherry, fluid extract of, six drachms.
Opium, tincture of, four drachms.
Magnesia, carbonate of, three drachms.
Water, six ounces.
White sugar, ten ounces.

Mix the magnesia first with the oil of tar, add the fluid extracts, mix thoroughly, then add the tincture of opium and water. Filter and form a solution with the sugar by shaking the bottle.

Brandreth's Pills.

Aloes, four ounces.
Colocynth, extract of, four drachms.
Gamboge, two ounces.
Castile soap, one ounce.
Oil of peppermint, twenty drops.
Cinnamon, seven drops.

Mix and form into pills.

Brown's Bronchial Troches.

Licorice, extract of, pulverized, one pound.
Sugar, pulverized, one and one-half pounds.
Cubebs, pulverized, four ounces.
Gum arabic, pulverized, four ounces.
Conium, extract of, pulverized, one ounce.

Mix.

Bucklen's Arnica Salve.

Arnica, extract of, one ounce.
Resin cerate, eight ounces.
Vaseline, two ounces.
Seedless raisins, eight ounces.
Fine-cut tobacco, one-half ounce.
Water, a sufficient quantity.

Boil the raisins and tobacco in one pint of water until the strength is extracted, press out the liquid and evaporate to four ounces. Soften the extract of arnica with a little hot water and mix the liquid with it. Add this to the cerate and vaseline, previously warmed, and mix all thoroughly.

Bull's Cough Syrup.

Morphine, sulphate of, three-fourths grain.
Granulated sugar, two drachms.
Syrup, three ounces.

Mix together.

Carter's Little Liver Pills.

Podophyllin, two and a half grains.

Ground aloes, three grains.
Gum arabic, mucilage of, enough to make a soft mass.

Divide into twelve pills and coat with sugar. Take at bed-time one or more as needed.

Castoria.

Senna, four drachms.
Manna, one ounce.
Rochelle salts, one ounce.
Fennel seed, bruised, one and a half drachms.
Boiling water, eight ounces.
Sugar, eight ounces.
Oil of wintergreen, enough to flavor.

Pour the water on the ingredients. Cover and macerate until cool. Strain; add sugar and oil of wintergreen.

Cuticura Ointment.

The much advertised Cuticura Ointment has been found to consist of a base of petroleum jelly, colored green, perfumed with oil of bergamot and containing two per cent. of carbolic acid, or nine drops to the ounce.

Cuticura Resolvent.

Aloes socot., one drachm.
Rhubarb, powdered, one drachm.
Iodide potassium, thirty-six grains.
Whisky, one pint.

Macerate over night and filter.

Davis' (Perry) Pain Killer.

Guaiacum, powdered, two and one-half ounces.
Camphor, two drachms.
Cayenne pepper, powdered, six drachms.
Caustic liquor of ammonia, one drachm.
Opium, powdered, one-half drachm.

Digest these ingredients in one quart of alcohol for two weeks and filter.

Fellow's Hypophosphites.

Glucose (grape sugar), one pound.

Lemon, syrup of, one pint.
Calcium, hypophosphites of, one hundred twenty-eight grains.
Potash, hypophosphites of, forty-eight grains.
Iron, sulphate of, forty-eight grains.
Magnesia, sulphate of, thirty-two grains.
Strychnine, sulphate of, two grains.
Quinine, sulphate of, fourteen grains.

Dissolve the calcium and potassium hypophosphites in two ounces warm water. Add to one ounce water, three ounces syrup; dissolve in mixture by aid of heat, the sulphates. Mix the solutions and set by a few hours covered. Filter into bottle containing remainder of syrup, wash the residue with an ounce of boiling water and mix filtrate and washings with the syrup. Dissolve the glucose in the mixture and add through the filter enough water to make two pints.

Green Mountain Salve.
Resin, ten ounces.
Burgundy pitch, four drachms.
Beeswax, four drachms.
Mutton tallow, four drachms.
Oil hemlock, one drachm.
Balsam fir, one drachm.
Oil origanum, one drachm.
Oil red cedar, one drachm.
Venice turpentine, one drachm.
Oil wormwood, one-half drachm.
Verdigris, powdered, one drachm.

Melt the first articles together and add the oils. Rub up the verdigris with a little oil, put it in with the other articles, stir well, and then put the basin containing the mixture into a larger vessel of cold water, and work with the hands until cold enough to roll.

Greene's Nervura.
Cinchona, tincture of, five ounces.
Damiana, tincture of, five ounces.
Cocoa, tincture of, five ounces.
Mix.

Green's August Flower.

Rhubarb, three hundred sixty grains.
Golden seal, ninety grains.
Cape aloes, sixteen grains.
Peppermint leaves, one hundred twenty grains.
Potash, carbonate of, one hundred twenty grains.
Capsicum, five grains.
Sugar, five ounces.
Alcohol, three ounces.
Water, ten ounces.
Peppermint, essence of, twenty drops.

Powder the drugs and macerate in the mixed alcohol and water for seven days; filter, and add enough diluted alcohol to make the whole measure one pint.

Haarlem Oil.

Sulphur, two ounces.
Linseed oil, one pound.
Amber, oil of, two ounces.

Boil the sulphur and linseed oil on a slow fire until the sulphur is dissolved. When somewhat cooled take the oil of amber and enough oil of turpentine to bring the preparation to the consistence of molasses.

Hop Bitters.

Hops, tincture of, one-half ounce.
Buchu, tincture of, three drachms.
Senega, tincture of, three drachms.
Podophyllin (dissolved in spirits of wine), ten grains.
Cochineal, tincture of, twenty drops.
Distilled water sufficient to make one pint. Mix.

Hostetter's Bitters.

Sugar, one ounce.
Sweet flag root, one ounce.
Orange peel, one ounce.
Peruvian bark, one ounce.
Gentian root, one ounce.
Columbo root, one ounce.
Rhubarb, two drachms.

Cinnamon, one drachm.
Cloves, one-half drachm.
Diluted alcohol, one pint.

Hunyadi Janos Water.
Lime, sulphate of, seventy-two grains.
Glauber salts, two and one-half ounces.
Epsom salts, two and one-half ounces.
Potash, sulphate of, six grains.
Water, eight pints.

Mix together and charge with gas if desired. Dose, one-half glassful more or less. This is an active cathartic.

Liebig's Corn Cure.
Indian hemp, extract of, five drachms.
Salicylic acid, four ounces.
Collodion, one-half ounce.

Mix until dissolved. Apply with camel hair brush four consecutive nights and mornings.

Lydia Pinkham's Vegetable Compound.
Cramp bark, four ounces.
Partridge berry vine, four ounces.
Poplar bark, two ounces.
Unicorn root, two ounces.
Cassia, two ounces.
Beth root, one and one-half ounces.
Sugar, one and one-half pounds.
Alcohol, one pint.
Water a sufficient quantity.

The drugs should all be reduced to a moderately coarse powder. Pour on boiling water, let stand until cold, then percolate with water until the percolate measures one pint; add the sugar, bring to a boil. When cold add the alcohol and strain.

One or two teaspoonfuls three or four times a day.

Orange Blossom.
Zinc, sulphate of, one drachm.
Alum, fifteen grains.
Cocoa butter, three drachms.

White wax, one-half drachm.
Sweet almonds, oil of, one and one-half drachms.
Henbane, extract of, one grain.

Paine's Celery Compound.
Celery seed, two ounces.
Red cinchona, one ounce.
Orange peel, one-quarter ounce.
Coriander seed, one-quarter ounce.
Lemon peel, one-quarter ounce.
Hydrochloric acid, fifteen drops.
Alcohol, five ounces.
Glycerine, three ounces.
Water, four ounces.
Syrup, four ounces.

Grind the solids to moderately coarse powder (No. 40), mix the acid and water, add glycerine and alcohol, and in the menstruum so prepared macerate the powder for twenty-four hours. Then percolate, adding enough water and alcohol in the proportion to make twelve fluid ounces. Finally add the syrup and if necessary, filter.

Peruna.
Copaiba, six drachms.
Cubebs, two drachms.
Calisaya bark, ground, two ounces.
Stone root (collinsonia), ground, two ounces.
Corydalis (Turkey corn), ground, two ounces.
Deodorized alcohol, one pint.

Add all the ingredients to the alcohol. Let stand one week. Shake the bottle frequently, finally strain or filter.

Pettit's Eye Salve.
Olive oil, four drachms.
Spermaceti, one and one-half drachms.
White wax, one-half drachm.

Melt together and add gradually in a warm mortar the following in fine powder and thoroughly mix, stirring briskly while adding:

Zinc, oxide of, thirty grains.
White precipitate, twenty grains.
Benzoic acid, two grains.
Morphine, sulphate of, three-quarter grain.
Rosemary, oil of, one-half grain.
Stir until cool and keep in a well-covered vessel.

Pierce's Favorite Prescription.
Savin, one hundred fifty grains.
Cinchona, one hundred fifty grains.
Agaric, seventy-five grains.
Cinnamon, seventy-five grains.
Water sufficient to make eight ounces.
To this add the following:
Acacia, one hundred fifty grains.
Sugar, seventy-five grains.
Digitalis, tincture of, one-half drachm.
Opium, one-half drachm.
Anise, oil of, eight drops.
Dissolve the gum and sugar in the strained decoction and add:
Alcohol (in which the oil has previously been dissolved), two ounces.

Pierce's Golden Medical Discovery.
Cinchona, fluid extract of, sixteen ounces.
Columbo, fluid extract of, four ounces.
Guaiac, fluid extract of, eight ounces.
Licorice, fluid extract of, four ounces.
Opium, tincture of, one ounce.
Podophyllin (resinoid), one hundred twenty grains.
Glycerine, six pints.
Alcohol enough to dissolve the podophyllin.
Mix all together. One teaspoonful from two to four times a day.

Pimple Lotion.
Carbolic acid, one drachm.
Borax, four drachms.
Glycerine, two ounces.

Tannin, two drachms.
Alcohol, three ounces.
Rosewater, ten ounces.
Mix and dissolve. Apply night and morning.

Pink Pills For Pale People.
Iron, sulphate of, one-half ounce.
Potash, carbonate of, one hundred forty ounces.
Sugar, forty-eight ounces.
Tragacanth in fine powder, sixteen ounces.
Glycerine, ten drops.
Water enough to make a mass. Mix and divide into one hundred fifty pills.

Radway's Ready Relief.
Soap liniment, one and one-half ounces.
Capsicum, tincture of, one-half ounce.
Ammonia, water of, one-half ounce.
Alcohol, one-half ounce.

Sage's Catarrh Remedy.
Golden seal, powdered, one ounce.
Borax, powdered, ten grains.
Common salt, ten grains.
Cyanuret of iron, sufficient to color.

Seidlitz Powders.
Rochelle salts, two drachms.
Soda, bicarbonate of, two scruples.
Tartaric acid, thirty-five grains.
Mix the salts and soda together and put in a blue paper; put the tartaric acid in a white paper. When using, put the powder contained in the blue paper in about half a glass of water, then add the tartaric acid and drink quickly while effervescing.

Seven Barks.
Hydrangea, extract of, one drachm.
Poke root, extract of one and one-half ounces.
Culver's root, extract of, one and one-half ounces.

Dandelion, extract of, one and one-half ounces.
Ladies' slipper, extract of, one and one-half ounces.
Colocynth, extract of, one and one-half ounces.
Bloodroot, extract of, six drachms.
Blue flag, extract of, six drachms.
Stone root, extract of, six and three-quarter drachms.
Golden seal, extract of, seven and one-half drachms.
Mandrake, extract of, three ounces.
Black cohosh, extract of, three ounces.
Butternut, extract of, six ounces.
Spirits of sea salt, two ounces.
Aloes, ten drachms.
Borate of sodium, two ounces.
Capsicum, infusion of, four and one-half drachms.
Sassafras, powdered, eleven drachms.
Ginger, six drachms.
Syrup, one and one-quarter quarts.
Water, sufficient to make three quarts.

Shiloh's Consumption Cure.
Morphine, muriate of, three grains.
Muriatic acid, three drops.
Henbane, fluid extract of, two drachms.
Ginger, fluid extract of, three drachms.
Wild cherry, fluid extract of, three drachms.
Alcohol, one and one-half drachms.
Water, one and one-half drachms.
Chloroform, one drachm.
Peppermint, essence of, one-half teaspoonful.
Tar, syrup of, three ounces.
Syrup, enough to make eight ounces.

Sozodont.
Castile soap, seventy-five grains.
Glycerine, seventy-five grains.
Alcohol, one ounce.
Water, five drachms.
Peppermint, oil of, sufficient quantity.
Cloves, oil of, sufficient quantity.

Anise, oil of, sufficient quantity.
Cinnamon, oil of, sufficient quantity.

Squibb's Diarrhea Mixture.
Opium, tincture of, one ounce.
Capsicum, tincture of, one ounce.
Camphor, spirits of, one ounce.
Chloroform, purified, one hundred eighty drops.
Alcohol, enough to make five ounces.
From fifteen to thirty drops.

St. Jacob's Oil.
Gum camphor, one-quarter ounce.
Chloral hydrate, one-quarter ounce.
Chloroform, one-quarter ounce.
Sulphuric ether, one-quarter ounce.
Opium, tincture of, one drachm.
Origanum, oil of, one drachm.
Sassafras, oil of, one drachm.
Alcohol, one pint.

Stuart's Dyspepsia Tablets.
Each tablet contains the following:
Common baking soda, ten grains.
Morphine, one-twentieth grain.

Swift's Syphilitic Specific.
Old man's gray beard root, one peck.
Prickly ash root, four ounces.
White sumac root, two ounces.
Red sumac root, two ounces.
Sarsaparilla root, one and one-half ounce.
Copper, sulphate of, two drachms.

Bruise the gray beard and sumac roots and put them with the sarsaparilla into an iron pot sufficient to hold eight gallons of water, or cover the roots completely with water. Cover the pot with pine tops and boil slowly until the liquid assumes the color of ink. Strain while warm, add the sulphate of copper and good Holland gin sufficient to prevent fermentation. Dose, one wine-glassful four times a day.

PREGNANCY.

The First Things to Do—Diet—Breasts and Nipples—The Teeth—Exercise—Rest — Bathing — General Health—Clothing — Miscarriages — Preparation for Labor—The Obstetrical Nurse—Useful Suggestions for the Nurse—Suggestions for Nurse During Labor—Maternity Outfit, Necessities For—Child-Bed Fever—Antiseptic Powders—Rules for Emergencies Among Children — Artificial Feeding—Diet for Lying-In Period.

THE FIRST THINGS TO DO.

As soon as she is aware of her condition, or has a belief as to its probability, the mother should place herself under the care of an experienced physician, as a certain degree of professional advice and attention is required during the whole period of pregnancy. While the condition as a rule is merely weakness, the borderland between health and disease may very easily be overpassed. At any time disorders or complications may occur, these in all probability can be warded off or promptly remedied by the physician's watchful care and treatment. The mother's whole duty now is to herself and her child. Nothing should be permitted to interfere with the well-being of either. Some of the symptoms of pregnancy are suppression of the menses, darkening of the brown area (areola) surrounding the nipples, and morning sickness, sometimes accompanied by nausea and vomiting at different periods of the day.

There is generally an inability of the bladder and later a secretion of milk-like fluids in the breasts with an enlargement of the same and an enlargement of the abdomen. Upon the appearance of any or all of these symptoms a physician should be consulted.

Pregnancy is liable to occur at any time during the inter-men-

strual periods. The full term of pregnancy is 280 days. This may be prolonged to more than 300 days. The embryo is fully developed at the end of nine calendar months. Its expulsion is termed labor, confinement or parturition. The period covered by this expulsion is known as the puerperium. The period following delivery and until recovery is called the lying-in period. To calculate the date when confinement will take place count back three months from the date of the close of the last menstruation and add to this seven days. For example, the date of the last menstruation was May 1; substract three months, February 1; add seven days, will give February 8, as the probable date of delivery. The movements of the child, spoken of as "life," begin at from four to four and one-half months. The sensation has been described as resembling the fluttering of a bird in a closed hand. These movements should cause no anxiety. If painful and annoying the mother should avoid active exercise and seek rest; if they persist she should consult her physician.

During the period of pregnancy a woman is often inclined to be irritable and despondent. For the sake of both her child and herself she must try to overcome this tendency. Her husband and friends should try to make her home life calm and happy, and should shield her so far as possible from all disturbing influences. "Thousands of children are, by unpleasant impressions on the mother's mind, rendered the victims of untruthfulness and disobedience, together with malicious, threatening and even murderous natures."

A child is most liable to be affected physically during the earlier months; mentally, during the latter months of pregnancy.

A mother should not read medical books, except by consent of her physician, nor horror stories, nor anything that will tend to morbid thoughts. Everything of an emotional or disagreeable nature should be avoided. Late hours or excitement of all kinds should be eschewed. Despondency is sometimes caused by physical conditions which can be relieved by the physician.

DIET.

It is the popular opinion among women during this period that they require more than their usual quantity of food. This is a mistake that often leads to much suffering. A healthy woman

will not and ought not to require, in the earlier months especially, more than the usual amount of food. Craving for and surfeiting with unusual articles of food, proceeds from a disorganized system and may be avoided by a little attention. Many authorities might be cited to show that the abuse of diet at this time, in the way of over-eating, or partaking of indigestible foods, is the occasion of dyspepsia and stomach disorders, which can in this way be transmitted from parent to child.

No absolute rule can be laid down, as the same foods do not agree with all patients, but in a general way the following may be accepted:

Food should be plain, nutritious, easily digestible; it should be taken at regular intervals. Morbid cravings must be repressed, but individual fancies, dislikes or idiosyncracies may be indulged, provided the food chosen fulfills the above requirements. Over-eating, especially in the later months, should be guarded against. At this time, when there is little space for a full stomach, the meals may be small, but more frequent. Tea, which constipates, and coffee should be taken with great moderation. No alcoholic drinks should be taken except by the advice of a physician. Milk and chocolate are unobjectionable. The one drink most important to every function of the body is pure water; this should always be taken in sufficient quantity. Cereals are useful, with fruits, at breakfast, to keep the bowels open.

The following is a list, showing in a general way what foods may be taken and what should be avoided. The pregnant patient may take:

Soups. Clear soups of all kinds, animal broths, chicken broth, pea puree, oyster broth and clam broth.

Fish. Fresh fish of all kinds, of salt fish codfish only is permissible; oysters, clams.

Meats. Mutton, lamb, beef, tender pig, pork, bacon, chicken, game, tongue, sweetbreads, turkey, goose (both better eaten cold).

Eggs in every form; cream, butter.

Cereal breakfast foods (except oatmeal), corn, graham and wheat muffins, graham, whole wheat and white bread, soda or baking powder biscuits, pancakes (except buckwheat), rice and macaroni and mush.

Vegetables. Green uncooked cabbage, cauliflower, lettuce, spinach, dandelion, spring onions, corn, squash, cucumbers, radishes, horseradish, peas, celery, tomatoes, plain vegetable salads, melons, potatoes sparingly.

Fruits. Fresh and cooked fruits of all kinds except bananas; home canned and dried fruits; nuts, except chestnuts and peanuts.

Puddings, etc. Fruit pies of all kinds, pumpkin, squash and custard pies and gelatine puddings, cornmeal pudding, blanc mange, whipped cream, ice cream, honey, maple syrup, plain cake.

Beverages. Half a glass of water one-half hour before each meal and upon retiring; coffee for breakfast only; cocoa, malted milk, grain coffee, cold tea, lemonade, ginger ale, mineral water. Stimulants only when ordered by physician.

To be avoided. Soups made from vegetables growing under ground, salt pork with or without beans, baked beans, boiled dinners, ham, veal, duck, liver, kidneys, hash, meat-mixed salads, corned beef, canned meats or fish, canned soups, mackerel, dried salt meats or fish, except codfish. Tapioca, oatmeal, sugar on breakfast cereals, bananas, skins of fruit, mince pies, suet puddings, layer cakes, fruit cake.

BREASTS AND NIPPLES.

For a couple of months before labor the nipples should be washed daily with pure soap and water and afterwards carefully dried and anointed with fresh cocoa butter or white vaseline. The same treatment also will do more to prevent sore, cracked nipples during nursing, by keeping them supple, than the method of hardening them with astringents. During the last months the breasts should be massaged quite freely, as this will make the milk flow more freely on the first days, at which time it is usually slow. The physician should examine the breasts in the early stages of pregnancy to ascertain whether the nipples can be drawn out early and any cracks and fissures, soreness or sensitivenes should be reported to the physician.

THE TEETH.

"For every child a tooth," says an old proverb; because the saliva is more acid during pregnancy, and the teeth if neglected

decay more rapidly. An alkaline mouth wash should be frequently used, one-half teaspoonful baking soda in a glass of water. It is a fact that the teeth are apt to undergo destructive changes if special care is not taken.

EXERCISE.

Even up to the very day of lying-in, a healthy pregnant woman will find herself benefited by exercise. Extremely active exercise should be avoided. Exercise should be in the open air if possible; nothing is better than walking. Horseback riding and bicycling or even carriage riding over rough roads are apt to be harmful.

Light housework is beneficial but heavy lifting and all muscular strain must be carefully avoided. Never allow undue exposure to cold and dampness. Wet feet will often cause death of the child and place the mother in a dangerous condition. If the feet are inclined to be cold let them be rubbed briskly with a rough towel.

REST.

An abundance of sleep is necessary; at least eight hours every night should be taken, and a short nap during the day may well be added. The usual marital relations are distasteful to most women during this period, and to many are the source of much pelvic discomfort, as well as a prominent factor in aggravating the nausea and sickness of the early months and in causing abortion. Therefore it is well during the first months of pregnancy and again at the close (especially in women with a known tendency to abortion), that the husband and wife occupy different beds.

BATHING.

The functions of the skin are to be kept active at all times during pregnancy, but more especially toward the close, to relieve the kidneys as much as possible. On rising a cold sponge bath is refreshing. Cold baths, however, should be carefully used; a tepid bath, especially a sitz bath, once every day, and perhaps a hot bath every other day are beneficial. The hot bath should be taken at night to avoid taking cold. For the sitz bath an ordinary tub may be used. The water should cover hip and pelvis well. This bath

should be of just four minutes duration and may be taken just before retiring or before mid-day and followed by an hour's rest.

During the last half of pregnancy a daily application of cocoanut oil, vaseline or pure sweet oil will relieve irritation or cracking of the skin. After bathing, cold cream should be applied to the lower vaginal soft parts. Vaginal douches should not be taken except by the advice of a physician. To apply a vaginal douche properly use a fountain syringe. Use water that has been boiled and cooled, have the water 112 to 118 degrees Fahrenheit. From ten to twenty drops of carbolic acid may be added to a quart of water. Hang the syringe not over four feet above the level of the body. Sit either in a bath tub or else over a slop jar or a bed-pan in a half lying down position, use from one to four quarts of water.

GENERAL HEALTH.

The better a woman's health and strength during her pregnancy, the better will she be able to pass through the ordeal of labor and perform the duties of motherhood. Most women pay too little attention to themselves. Any deviation from ordinary good health should be reported at once, especially if any of the following symptoms are present: excessive vomiting, loss of appetite, varicose veins, hemorrhage, constipation or diarrhea, sleeplessness, severe or continued headache, disturbances of sight, such as dimness of vision or the appearance of spots floating before the eyes, fainting, swelling of the face, hands or feet, and any diminution of the amount of urine passed.

CLOTHING.

Outer garments should fit loosely and comfortably; if suspended around the waist they should be as light as consistent with comfort and health and heavy garments should hang from the shoulders, which is the best method, as it does not bring too much weight upon the vital organs. No undue pressure should be made by the clothing upon the chest or abdomen; ordinary corsets must therefore be discarded, but a waist or broad abdominal band may be worn, if by its support it gives comfort. Skeleton corsets to support the breasts may be worn when required, but they should not squeeze the waist. Underwear should be of wool, of thickness

suited to the season. Tight garters impeding the circulation must not be worn. High-heeled shoes which impede locomotion and cause stumbling are not to be worn.

MISCARRIAGES.

Miscarriages are more apt to occur in women who have borne children. They generally occur at the third or seventh months. They usually follow violent exercise, extreme fatigue, a long journey, accidents, severe illness or attempts at abortion.

If at any time during pregnancy the mother is affected with chills, nervousness, faintings, pain in the pelvis, a sensation of weight about the hips and back, discharge accompanied with blood, she should remain in bed and summon a physician. After such symptoms subside she should avoid any work or exercise which is fatiguing.

THE PREPARATION FOR LABOR.

About two weeks before delivery, symptoms of approaching labor manifest themselves acutely. These last until after the child descends into the pelvis, after which a sense of relief is experienced. Even when this is accompanied by diarrhea, a frequent desire to urinate or even a discharge, there need be no alarm. Slight pains may also be experienced several days before actual labor sets in.

Everything should be in readiness two or three weeks before confinement and the physician and nurse consulted. The nurse should know where everything is, so that at the time of labor confusion may be avoided. For the lying-in room, a large well-ventilated room, with a sunny exposure, should be selected. As labor may occur at night a good artificial light should be provided. The room should not be exposed to contamination from defective plumbing or other sources of impurity. A room with a stationary washstand or sink is preferable. Under no conditions should a room be selected if it has recently been occupied by a patient suffering from a suppurating wound, cancer, erysipelas or any contagious or infectious disease; nor should anything that has been used by such patient, as furniture, mattresses, pillows, etc., be admitted to the lying-in room. Thorough cleanliness is the matter

of chief importance and this can be attended to even in the most humble home. Any defective plumbing should be repaired, drains flushed and disinfected and in case an infectious disease has occurred in the house, have it thoroughly disinfected. This cleaning and disinfection should be attended to about a week before labor is expected to occur and the room be kept clean. Unnecessary curtains, hangings, bric-a-brac and furniture should be removed, though not so completely that the room will not be left comfortable and cheerful. There should be available an abundant supply of hot water. A gas or oil stove in the room is a great convenience.

As soon as labor pains begin the physician should be summoned. While awaiting his arrival the patient should receive an enema consisting of a pint of warm soap suds to which a teaspoonful of spirits of turpentine has been added. This may be repeated if the first stage of labor is very prolonged. The use of the water-closet is prohibited during this period. If labor is prolonged or brings great suffering, and if advised by the physician, four grains of sulphate of quinine can be taken every two hours. A warm bath, preferably a sitz bath, is then to be taken and the patient dressed. The management of the case is now entirely in the physician's hands.

The following has been suggested by a lady physician as a suitable attire in confinement: An undervest, a long nightdress, a pair of large, roomy open drawers, a skirt made extra large, a pair of stockings, a pair of bedroom slippers and a wrapper. A large sanitary napkin or towel is also worn for protecting the underwear.

It is advisable to have ready a complete change of underwear and extra sheets for use if necessary. Have ready also a plentiful supply of hot water and some water which has been boiled and cooled. The latter should be kept well covered from dust and dirt.

THE OBSTETRICAL NURSE.

The obstetrical nurse fills a very trying position, and to be successful, must be especially adapted to her chosen calling. She has two patients under her care, and many demands are made upon her time, strength and good nature, both by day and night. Consequently she must be cheerful and obliging as well as neat, trustworthy and entirely truthful. Above all else she must be

thoroughly in accord with the physician, obeying his orders to the last degree, and reporting to him at once any infractions of the rules that he has laid down for the patient. Bright, intelligent women between the ages of twenty-eight and thirty-five years make the best obstetrical nurses. Old women and so-called monthly nurses are worse than useless.

The nurse, like the physician, must be scrupulously neat and cleanly in her habits and instincts. When in attendance on a case she should wear a dress of wash goods, made with detachable sleeves which can be taken off when she has any duties to perform about the patient. An apron must always be worn and a nurse's cap is very desirable. A nurse should be careful to provide herself with enough clean caps, dresses and aprons to provide against any emergency. A bed or cot should be provided for her in the lying-in room, but she should under no circumstances sleep with the patient.

If possible, her work should be so arranged that she can be out of doors in the fresh air for an hour every day, and the thoughtful physician will see that this opportunity is given her.

USEFUL SUGGESTIONS TO THE NURSE.

The proper temperature for the lying-in room is 68 to 70 degrees Fahr., both day and night.

No medicine or vaginal douches should be given without specific order from the physician. Notify the physician at once of any important occurrence.

Visitors should not be allowed in a lying-in chamber for two or three weeks after confinement, except with the consent of the physician. Take the temperature, with fever thermometer, and pulse of mother every four hours for first week; afterward night and morning. Report immediately to physician if the pulse is over 100 or temperature over 100.5. The special need of the mother is complete rest in bed for ten or twelve days. She should not walk about the room for four or five days after that and should not leave the room or lift her child until full three weeks after confinement. For one month she should not read or sew. She should be given a sponge bath daily.

Absolute cleanliness (asepsis) of the person, the clothing and

bedding of the patient is of vital importance. No cloth or article should touch the genitals of the patient or navel of the child, unless first made sterile. If not supplied from sterile packages (as in maternity outfits), cloths and bandages should be dipped in antiseptic solution, camphenol, or solution of antiseptic soap, then washed by boiling water, ironed, wrapped in sheets and if possible baked in an oven for an hour. These should be kept covered until used.

All soiled cloths and clothing should be removed from the room at once and steeped in an antiseptic solution; solution camphenol one tablespoonful to one quart of water. Burn cloths, which can not be used again. Change sanitary pads every four hours during the first week. Bathe external genitals every four hours, when the patient is awake, with a warm antiseptic solution. Use absorbent cotton or gauze for this purpose. Wash the genitals after urination with boiled water. Do not use a catheter without instructions.

The best position for the mother is lying on the back. She may be moved from one side of the bed to the other several times a day. Keep a pad of gauze cloth filled with absorbent cotton or a folded clean sheet under patient, and change when it is soiled.

The nipples should be wiped off before and after using, with a solution of boric acid. Swollen and painful breasts should be given gentle massage. Oil the hands before rubbing. An inflamed breast should not be rubbed. Any extreme sensitiveness should be reported to the physician.

BATHING.

The first bath after birth can be delayed for some hours where the child has been anointed with olive oil and wrapped in a woolen blanket. The first bath should be with castile soap suds at a temperature of 100 degrees F. (use a thermometer), and should be given in a warm room, preferably in front of a fire, only uncovering a portion of the body at a time. The nurse should wear a water-proof apron and over it a flannel apron or blanket. Two different cloths or sponges should be used for the head and body. The head and face should be washed in separate water. The scalp should be cleansed thoroughly. The eyes should never be

washed with a wash cloth, but should be cleaned with a piece of gauze or lint wet with a solution of boric acid or by dropping water that has been boiled and cooled.

SUGGESTIONS FOR NURSE DURING LABOR.

The following suggestions are easy to carry out and will be found useful to those who have not had the advantage of obstetric training. One direction of great importance will bear repetition. The lying-in room must be kept well ventilated and clean. Soiled linen should be removed as soon as possible and should be immediately immersed in water preparatory to washing.

There are three stages of labor. The first is from the beginning of the labor pains to the rupture of the bag of waters; it may be of several hours duration. The second stage is from the time of the rupture of the bag of waters until the delivery of the child; this may vary from fifteen minutes to three hours. The third stage is from the birth of the child until the delivery of the after-birth.

The position to be assumed by the patient in the successive stages of labor is a matter of importance. During the first stage she may walk or sit with an occasional rest in bed. In lying down it is best to lie upon the left side with the head and shoulders raised.

If labor occurs at night the nurse should see that the patient gets some sleep. If necessary she should consult the physician. Sleeping drugs or stimulants should not be given except on the physician's orders. Above all, meddlesome visitors should not be admitted at this stage, nor should conversation be allowed upon severe or remarkable cases of child-birth. The patient must be kept in a cheerful, hopeful frame of mind. During this first stage everything which can possibly be needed for the physician and patient should be placed at hand ready for instant use. During the second stage the physician should surely be present. The patient may lie on the left side or back according to comfort, and according to the instructions of the physician.

At the very commencement the obstetrical outfit should be opened and contents laid out on a clean sheet. Dishes, pitchers and bowls should be cleansed in boiling water and a sterile cloth

laid over them. Instruments, scissors, etc., should be boiled and wrapped in sterile gauze. The nurse should sterilize her hands and after such sterilization should not allow them to come in contact with any unsterile object, such as bed clothing, furniture, or utensils. Some nurses draw a pair of sterile cotton or rubber gloves over their hands after sterilization and remove them when necessary, rinsing their hands in sterile water after the removal and before touching the patient.

It is a good plan to train the hands so as always to use the same one for touching unsterile objects. One hand is thus kept absolutely sterile for touching the patient. Every sponge or cloth should be thrown in a slop jar as soon as used, forceps being employed to prevent contact with the fingers. If the towel or cloth on which the patient lies becomes soiled with the feces it must be covered at once with a fresh towel wet with an antiseptic solution, a bichloride solution made with the tablets for that purpose.

Chloroform is generally used to lighten the pains of labor. There need be no fear of the results where its use is advised by a competent physician. Patients should understand that in these cases chloroform is not given to the point of complete anæsthesia as is the case in surgical operations. Before chlorofrom is used the patient's face should be coated with vaseline as a protection against the irritating action of the drug. The discovery of the efficacy and safety of chloroform in this use has been one of the blessings of modern science.

As soon as the head of the child is born the mouth should be cleared of blood and mucus with a piece of gauze dipped in a solution of boric acid, made by dissolving ten grains of boric acid in eight teaspoonfuls of water. The eyes should be cleansed with water without soap or else with the boric acid solution.

After the delivery of the child the first step is to tie and cut the cord. When sterilized tape for this purpose is not at hand use a piece of white silk cord that has been thoroughly boiled in water. The child as soon as born should be received into a warm woolen blanket. The body of the child is to be anointed with olive oil.

The end of the cord is to be cleaned, dried, and wrapped with a square of the lintine dipped in alcohol or borated solution and held in place by a soft bandage. The third or final stage of labor is the removal of the after-birth. It is best accomplished with the

patient on her back, from which position she should not be changed for at least ten hours. The after-birth should be burned.

A COMPLETE MATERNITY OUTFIT.

This outfit is put up according to the suggestion of Dr. Joseph Brown Cooke, of New York; it will be found to contain all the articles which the most exacting practitioner could require. It contains:

Six abdominal binders, each nine by fifty-four inches.

Twenty-four sanitary (vulva) pads, made of absorbent cotton covered with bleached gauze, sterilized and wrapped. For absorbing discharges.

Two obstetrical sheets, blankets of gauze and cotton for protecting bedding.

Two quarter pound packages absorbent cotton, for compresses or pads.

Two papers safety pins.

One nail brush.

Twelve squares lintine, for cleansing the infant's eyes and mouth.

Alcohol, for dressing cord and for bathing purposes.

Synol soap, for disinfecting and lubricating hands and instruments.

Olive oil, for anointing infant immediately after birth before it is bathed.

Saturated solution boric acid, sterile, for cleansing the infant's eyes and mouth immediately after the birth of the head, and afterward for bathing the nipples and washing the baby's mouth before and after nursing.

Vaseline, in collapsible tubes, sterile, for lubrication and inunction.

Castile soap.

One bottle antiseptic tablets (bichloride), for making antiseptic solutions.

Two sponges, soft, different sizes, sterilized. For the infant.

This outfit is put up by Johnson & Johnson, New Brunswick, N. J., and may be procured through any druggist.

NECESSITIES FOR THE MATERNITY OUTFIT.

These outfits should be kept sealed and closed until the time of labor, then let the nurse or physician open them. This caution is important and may be the means of avoiding disastrous results. In addition there should be kept ready in the room the following articles:

Two or three small tables for holding basins, instruments, etc.

One piece of rubber sheeting, $1\frac{1}{4}$x$1\frac{1}{4}$ yards.

One piece white enamel cloth, $1\frac{1}{4}$x$1\frac{1}{4}$ yards.

One slop jar or pail, absolutely clean.

Two agate wash basins.

Six flannel binders.

One dozen clean towels made up in a parcel and covered. Old soft ones without fringe are the best.

Diapers, slips and other clothing for the baby.

As far as possible, a supply of clean sheets, pillow cases, night gowns and towels. In families where an abundance of sheets and rubber or oil cloth is not to be had, large pads of newspapers or of heavy wrapping paper may be used. Pads may be made by sewing the paper to cloths, first boiling and cleaning the cloths, and pads so made are far preferable to soiled quilts or blankets.

For the infant's first toilet there should be provided a thick woolen blanket, cotton diapers, a wool slip petticoat, a cotton slip overgarment, some extra blankets. Any other articles may be supplied as the physician directs or the need suggests itself. The following list of articles necessary for the proper clothing of an infant has been found useful: Six nightgowns, six woolen petticoats, six woolen slips, one-half dozen woolen socks, six woolen bands, six long-sleeved woolen shirts, diapers, one dozen muslin slips. In addition there should be provided safety pins, bathing aprons of soft flannel, an infant's hair brush and a powder puff.

CHILD-BED FEVER.

Child-bed fever has been called the scourge of the lying-in room. It is caused by poisons produced by germs or microbes gaining an entrance to the genital tract. These germs may be carried to the patient by attendants who are not clean. The germs of child-bed

fever are found upon dusty or dirty carpets, floors and walls of rooms, soiled clothing, vessels, utensils and instruments that have not been made surgically clean, that is sterilized. Sponges, old unwashed cloths and unboiled water are often filled with them.

Privies, cesspools, defective drains and garbage barrels often help in the dissemination of the germs of child-bed fever through the air. It has been found that child-bed fever can only be entirely avoided by the absolute cleanliness known to the surgeons as a condition of asepsis, free from poison. The successful physician now requires that the lying-in room shall be as clean as the hospital operating room. The best practitioners insist that physician, nurse and all who come in contact with the patient go to the room only after a thorough bathing and putting on of clean attire. That the patient, before she enters the lying-in bed, shall receive a thorough bath and put on clothing that is absolutely clean. That the hands, instruments and clothing that are to come in contact with the patient's body, are to be sterilized. It is of the greatest importance that all articles used in or about the mother and child at the time of child-birth should be in a condition that is termed surgically clean—this is the superlative degree of cleanliness. The dressings in the Simpson or Cooke maternity outfits are surgically clean—sheets, towels, etc. If necessary to use cloths, other than those contained in the maternity outfits, they must be carefully prepared and made ready, whether new or old. They should be washed, dried, etc., ironed and wrapped in a sheet or pillow case. Those which are to be used as wiping cloths, pads, towels, or used on the mother as dressings, should be put into an oven and baked for as long a time as may be convenient.

The dressings contained in the Cooke or Simpson outfits, or those which may be prepared as above described, should not be opened or handled except by the physician or nurse at the moment of use.

ANTISEPTIC POWDERS IN THE SICK-ROOM.

As soon as the new-born child has been washed, the skin should be dusted, especially in the folds and crevices, with some suitable antiseptic baby powder. At least once a day, and after each time the infant is bathed, the skin should be dusted in this way with the powder on a soft feather puff. This will prevent chafing and the

soreness so likely upon the tender skin. Around the face and mouth, where the baby is apt to moisten the skin frequently with saliva, the powder should be applied very often. Its absorbing and emollient action will prevent chafing.

For the mother. The skin should be dusted over with antiseptic baby powder each time it is washed. This is very important where, as on the thighs, the skin may be several times wet with poisonous discharges. An application of the powder after each washing of the skin is preferable to hard rubbing with a towel. It secures absolute dryness without the abrading and chafing entailed by the hard rubbing. Where washing must be frequent as in maternity cases, this is an important point. Antiseptic powder is an almost indispensible article in cases of child-birth. At least, it contributes so largely to comfort that it has come to be considered as such.

In the period of nursing the nipples frequently become sore; in such case they should be rubbed with cold cream or vaseline and then thoroughly dusted with the baby powder.

RULES FOR EMERGENCIES AMONG CHILDREN.

If the child is suddenly attacked with vomiting, purging and prostration, send for a doctor at once. In the meantime put the child for a few minutes in a hot bath, then carefully wipe it dry with a warm towel, and wrap it in warm blankets. If its hands and feet are cold, bottles filled with hot water and wrapped in flannel should be laid against them.

A mush poultice or one made of flaxseed meal, to which one-quarter part mustard flour has been added, or flannels wrung out of hot vinegar and water, should be placed over the abdomen.

Five drops of brandy in a teaspoonful of water may be given every ten or fifteen minutes; but if the vomiting persists, give brandy, milk and lime water in the same quantity.

If the diarrhea has just begun or if it is caused by improper food, a teaspoonful of castor oil, or of spiced syrup of rhubarb, should be given. If the child has been fed partly on the breast and partly on other food, the mother's milk alone must now be used. If the child has been weaned, it should have its milk food diluted with lime water or should have weak beef-tea or chicken-water.

The child should be allowed to drink cold water freely.

The soiled diapers or the discharges should be at once removed from the room, but saved for the physician to examine at his next visit.

ARTIFICIAL FEEDING.

Feeding is by far the most important part of the care of a baby. Life itself depends upon the food. At birth the stomach holds about one ounce, or two tablespoonfuls, and is so easily distended that much more than this can be crowded into it by overfeeding, to the great discomfort and injury of the child.

A baby naturally feels hungry and thirsty at times from the first, and may also sometimes suffer pain. It has only one way of making these troubles known and that is crying. Too often this crying is hushed by a nursing or a feeding, when perhaps the little sufferer is not hungry at all, and the wail proceeds from an entirely different cause. Too frequent or too liberal feeding distends the stomach to twice or thrice its natural size, the baby is uncomfortable and cries or vomits in self-defense, because there is no room in the stomach for the liquid that has been poured into it.

The overplus may irritate the bowels and give rise to diarrhea. A bottle-fed baby should be fed:

One week, every two hours, one ounce or two tablespoonfuls.

Two to four weeks, every two hours, one and one-half ounces or three tablespoonfuls.

One to three months, every two and one-half hours, three and one-half ounces or seven tablespoonfuls.

Three to six months, every two and one-half hours, four and one-half ounces or nine tablespoonfuls.

Six to twelve months, every three hours, seven and one-fourth ounces or fourteen and one-half tablespoonfuls.

Twelve to eighteen months, every three hours, nine ounces or eighteen tablespoonfuls.

No matter how much food is put into the child's stomach it is nourished only by the amount which is digested. The extra quantity does harm instead of good, causing pain, vomiting, colic and diarrhea. More infants die from too much food than from too little. Some mothers, either naturally or because of ill-health,

secrete milk which is not fit for food. When the child does not thrive artificial food should be tried.

DIET FOR LYING-IN PERIOD.

First day: Coffee, with cream, toast, a saucer of some favorite cereal with cream, a cup of hot milk or of gruel.

Second day: Coffee with cream, cocoa, toast, a cup of hot milk, gruel, oysters or clam broth, a cup of tea with crackers, toast sticks with butter, cream or milk toast.

Third day: The same as for the second day with the addition of baked or stewed apple. If the milk comes profusely on this day leave out liquids as much as possible.

Fourth day: Soft boiled or poached egg, toast, coffee, plain soup or broth of chicken, veal or mutton, crackers, bread and butter, jelly, honey, orange juice, a cup of tea or cocoa, cooked fruit.

Fifth day: Coffee or cocoa, broiled beefsteak or lamb chop.

On the sixth day and thereafter, the patient may partake of her regular diet with the exception of the fibrous vegetables growing under ground, cooked cabbage, oatmeal, baked beans, boiled dinners, mixed salads, pickles and bananas. It is quite necessary during the period of nursing for the mother to partake regularly between meals, of some easily digested liquid food.

In addition to my own experience, I am indebted for many valuable suggestions contained in the preceding article, to a very complete brochure published by Johnson & Johnson, New Brunswick, N. J.

THE VALUE OF HYGIENE.

It is interesting to note that the imperial health officers of Berlin, after long study of the subject, make the important declaration that hygiene is the great preventive of tuberculosis. Cleanliness and order, they hold, are the first requisites in the whole system of living. The body should be washed daily with moderately cold water, or it should be rubbed rapidly with a rough, wet towel. The hair, beard, teeth and mouth, as well as the nails, should be kept as clean as possible.

BREATHING.

Keep the mouth closed and breathe through the nose; this is the natural filter for impurities and injurious matter. An employer should remove causes of injury to health of the persons employed, or limit them as much as possible (dust, smoke, etc.). Work-time and rest should be arranged in appropriate proportion. The luxurious classes in this country, clean in their own persons, live in a fools' paradise. Though they keep their own houses perfect in every way, as regards sanitation, and think because of this they are insuring themselves against attacks of disease, they are forgetting the fact that if disease is to be prevented it is imperative that they should see that the dwellings of their tenants, dependants and neighbors are equally sanitary. Every sensible person of every rank should endeavor to constantly urge with all his power the legislation to improve the dwellings of the poor, and to enforce with the utmost severity the existing sanitary laws, imperfect as they are.

It would not be too much to say that three-fourths the deaths are due wholly to preventable causes, and that the average duration of life might be extended to almost double what it is now.

EXERCISE.

Another important factor of individual concern is the value of exercise in the open air. Without this there can be no perfect health. It is as essential to supreme health as food and water are to life. Exercise, by bringing the blood to the surface of the body and increasing its flow through the lungs, subjects it to the purifying influence of fresh air. It is important, therefore, that anyone who wishes to attain sound health, should make it a point to take daily walks, accustoming himself to inclement weather, changing damp clothing and shoes.

Go early to bed. Avoid excesses of every kind, as they destroy in a little time what it has taken long to attain.

Finally, avoid intercourse with persons suffering from infectious disease; if duty or calling involve such intercourse, do not neglect the proper precautions.

INFANTILE INDIGESTION.

Dietetic Management and Milk Substitutes for Children.

To the *Medical Record* of August 2, 1902, Fischer contributes a paper replete with practical suggestions. He tells us that the following substitutes have been of especial value to the writer, and are offered for temporary use in gastric and intestinal derangements:

How to prepare barley water. This can best be made by taking one heaping tablespoonful of ground barley flour and adding the same to one pint of water. Boil this thoroughly for half an hour, then strain through cheese-cloth, and add enough water to make one pint of barley water. It is advisable to sweeten by adding one heaping teaspoonful of granulated sugar. When sugar is contraindicated, as in fermentative conditions, add saccharin. When barley water is given for any length of time, and constipation results therefrom, then glycerin should be added. One teaspoonful of glycerin to each teacupful of barley water will make the same quite palatable, and will offset the constipating tendency.

How to prepare oatmeal water. This can be made by adding one tablespoonful of oatmeal flour to a pint of water, boiling the same in the manner described in the preparation of barley water.

If the child is underfed, then frequently the addition of the white of a raw egg, well beaten, with either of the above mentioned barley water or oatmeal water, will be found advantageous. In like manner the writer has frequently added the yolk of an egg, well beaten, with barley water or oatmeal water properly sweetened, as a temporary substitute.

Vegetable proteids. Great success is frequently scored by vegetarians, especially by the use of the celebrated vegetable milks. When we consider the ingredients used, it is no wonder that they offer good temporary, and often permanent, substitutes for animal milks. The writer has frequently recommended the use of

almond milk made by blanching almonds (sweet almonds) with scalding water and then rubbing them up thoroughly. One or two ounces of sweetened almonds with one pint of water will yield about one pint of almond milk. When it is to be used as the only substitute for milk the almonds can be thoroughly mashed and boiled with the water to extract all of the nutritive substance. This can best be done in the following manner: Scald about one to two ounces of sweetened almonds, removing the skin; then add about eight ounces of fresh water and mash the almonds to a pulp; boil this pulp with the water for about fifteen or twenty minutes, next strain through cheese-cloth, and add enough water to make one pint. Finally add one tablespoonful of granulated sugar. This can be given *ad libitum,* depending upon the age of the child to be fed. It is certainly a very nutritious substitute for milk containing proteid.

The writer frequently uses this almond milk as a diluent to break up the curd in cow's milk instead of using cereal decoctions. When children have eczema and erythematous eruption following the use of cereals, then almond milk may be used with advantage to dilute cow's milk. It is useful as a food in urticaria.

Vegetable soup substitutes. Mashed peas, boiled with beef or chicken or veal, offers a very nutritious proteid substitute for milk. This will be found especially advantageous during the hot summer months, when milk is not well borne, and when the physician requires a nutritious food which can be fed in doses of two, three, four, six, or eight ounces at proper intervals, just exactly as milk would have been given.

Tea as a substitute. Weakened mixed tea is frequently of great service with or without white of egg. When children have diarrhea and milk cannot be given, then dextrinized wheat or dextrinized barley or dextrinized rice offers a convenient and valuable substitute.

Tea with barley water, coffee with barley water. Weak tea, mixed with equal parts of barley water, is very valuable as a temporary substitute in hot weather. It can be fed in teaspoonful doses. It should be made palatable by sweetening with granulated sugar.

Coffee diluted with barley water or with rice water is very val-

uable as a substitute for milk when marked cardiac depression from continued diarrhea exists.

A few points concerning milk. When cow's milk is to be used for infant feeding a simple test can be used with advantage by almost every one. It consists in dipping a piece of blue litmus paper into the milk when it is received. If the blue litmus turns red, then it shows that the milk is acid. Such milk is entirely unfit for infant feeding, and it is necessary to add to such milk a pinch of either bicarbonate of sodium or bicarbonate of potassium. When acid milk is fed to children we will invariably have trouble.

It is advisable to learn the source of the milk, so that we can know the age of the milk received. A good plan is to procure milk which has been milked on the day it is bought. Such milk can be procured in a great many dairies. Several of our largest laboratories receive milk on the morning of the milking, and hence are in a position to supply fresh milk of a low bacteria count and before fermentation is developed. It is self-understood that the older the milk the more chance is offered to the development of microorganisms and the greater the tendency to fermentation. It is stale milk that invariably causes gastroenteric disturbances. When fresh milk is procured, then the same may be safely fed in its raw state, after having been warmed to the proper feeding temperature.

When milk stands for several days, as it frequently does in New York city, then no amount of boiling, Pasteurizing, nor sterilizing can destroy the toxins developed by the colon bacillus. Such milk is a deadly poison. The experiments made by Prof. Victor Vaughan, of Ann Arbor, Mich., have shown that, no matter how much heat is applied to such milk, its toxins cannot be destroyed. This investigator subjected milk to a temperature of 300° F. without destroying this toxin. The toxin produced in milk is a deadly poison, and it is this toxin that is the cause of cholera infantum, which ends so fatally. It is advisable, therefore, to secure clean milk from a clean source, and to feed it in clean vessels, if we desire good results.

If modern sanitary methods are applied in the stables, at the creamery, and, most important of all, at the home in which the milk is modified for infant feeding, then we have the remedy

against the development of summer complaint, as well as of scurvy and rickets, which sometimes are the stepping-stones to tuberculosis in later years.

FORMULA FOR WEAK INFANTS IN SUBSTITUTE FEEDING.

When vomiting and diarrhea persist give either

Barley water, 4 ounces,

Or

Oatmeal water, 4 ounces.

Feed every two or three hours. Sweeten with granulated sugar, half-teaspoonful to each bottle.

If fermentation exists—colic, greenish stools, and eructations—use saccharin, one-half grain, instead of sugar for sweetening.

When constipation is caused by continued use of barley or rice water, then sweeten with glycerin by adding half-teaspoonful of pure glycerin to each four-ounce bottle of rice, oatmeal, or barley water.

FORMULA FOR ALMOND MILK FOOD.

Almond milk, 4 ounces.
Granulated sugar, 1 teaspoonful.
Mix. Feed above quantity every three hours.

Whey. To make whey, take half a pint of fresh milk, heated lukewarm, not warmer than can agreeably be borne by the mouth (about 115° F.); add one teaspoonful essence of pepsin, and stir just enough to mix. Pour into custard cups; let it stand until firmly curdled; then beat up with a fork until the curd is finely divided; now strain, and the whey is ready for use.

Whey prepared from fresh cow's milk should be alkaline and contain from:

0.08 to 1 per cent of lactalbumin.
0.03 per cent of casein.
1.0 per cent of fat.

When such whey is added to milk, take of whey two parts, milk

one part, for an infant under six weeks. This can be increased until equal parts of milk and whey are used. (To be used for a child several months old.)

FORMULA FOR WHEY FEEDING.

For an infant under six months:

Whey, 2 ounces.
Milk, 1 ounce.

Warm to blood temperature (about 100° F.) for three minutes, then feed.

Above quantity can be fed every two or two and one-half hours.

When feeding a child two or four months old:

Whey, 2 ounces.
Milk, 2 ounces.

Feed every three hours.

If the above is well borne, we must gradually increase by adding an ounce of food; the formula will then be:

Whey, $2\frac{1}{2}$ ounces.
Milk, $2\frac{1}{2}$ ounces.

Feed above quantity every three hours.

The general condition of the infant—its sleep, its stool, and its body weight—is an important factor to determine an increase in the quantity of food.

If the child cries very much after feeding and appears hungry, then we can give:

Whey, 3 ounces.
Milk, 3 ounces.

Feed every three hours.

Some children at three months will take very readily six ounces of food. If the appetite warrants it, and the stool is homogeneous and well digested, then we need not hesitate to give the following:

Whey, 3 ounces.
Milk, 4 ounces.

Feed every three hours.

The weight is the determining factor. If the child does not thrive, increase the quantity of milk and decrease the whey.

In the case of feeble and debilitated children the writer frequently orders sweetened whey instead of water for quenching thirst. This is especially valuable in summer.

AIR AND WATER.

Air and water are two remedies apt to be overlooked by the profession in the search for cures, yet as all progress is constantly bringing us back to, and accentuating the value of, first principles, we occasionally find cases on whom all medicines have lost effect, and who yet can be restored by the intelligent use of these two natural agencies.

We have a case in mind at this writing. The patient had been an invalid for years. She had been the round of doctors and pathies. Had experimented with all the fads at home and abroad, with only temporary benefit. At length, she fell into the hands of a common-sense doctor in a little country town where she was passing the summer.

He regulated her diet and established her habits on a sound hygienic basis. Then he taught her how to breathe (something which many people do not know), and insisted that she drop everything and devote a few minutes several times a day to proper breathing. Also, and most important of all, that she drink *a glass of water every hour of the day while awake.*

She followed his directions to the letter, principally out of curiosity at first, and later because she began to see the good effects of the treatment. Her color improved, flesh became firm and bowels regular. In six months she was perfectly well.

The tissues of this woman were full of impurities, which the increased supply of oxygen and water either burned up or flushed out into the proper channels of elimination. The circulation and excretory organs felt the stimulus of the additional fluid and increased their work. When the auto-toxemia was relieved, all the unpleasant symptoms subsided.

The good effects which follow a sojourn at the various mineral springs are due chiefly to the large amount of water drunk, and the moderate, but regular, amount of exercise involved in getting it.

URIC-ACID-PRODUCING FOODS.

It is commonly believed that nitrogenous food is the main carrier of uric acid into the body. This is in part confirmed by the presence of so large a quantity of normal uric acid in the urine of carniverous animals. The truth is that the uric acid is derived from the nucleo-proteids which much of the nitrogenous food contains. The so-called nucleins which contain xanthin, hypoxanthin, adenin and caffein are the ones most to blame for the formation of uric acid. The substances are combined with albumen in the nucleins, but they are uncombined in the "meat juices"—in the extractives of animal tissues. These substances are not present to any great extent in milk, casein or in eggs, and not so much in the muscular structure of beefsteak as in the juices of the steak.

Coffee, tea and cocoa are very active in producing uric acid. This substance has been increased more than one hundred and twenty-five per cent by drinking coffee alone. A diet of bread and butter, potatoes, milk and eggs, will yield a normal quantity of uric acid, which will be increased one and one-half times by the addition of fresh meat. I have observed frequently that dried beef can be eaten with impunity by "uric acid" patients, with no very great increase of uric acid, but with a great increase of strength. This is due to the partial exclusion of the juices by the drying process.

Animal proteid alone is not productive of uric acid. Those substances, then, most necessary to avoid when it is desirable to exclude uric acid are, meat extracts, meat juice, beef tea, liver, sweet-bread, juicy fresh meats and fish roe, as well as tea, coffee and cocoa. The digestion of those articles which are beneficial must be attended to with great care, as the proper performance of the digestion is of immense importance.

MASSAGE.

An intelligent appreciation of the value of massage seems to be confined to a few physicians. A similar few make a fad of it, and by its promiscuous use, pervert its beneficial effects, and so tend to bring it into disrepute. Its true place as a therapeutic agent should be known to all, for there are cases in which it stands unrivaled as a source of relief.

In cases where the blood and secretions are thick, the circulation sluggish, the nerve centers torpid, sensibility deficient, the special senses blunted, massage is invaluable. Tissue metabolism and elimination are impaired in these cases, and the effect of massage is to stimulate the cell changes which we call nutrition, and to improve the lymphatic and venous circulations, leading directly to improved excretion.

Massage stimulates the medulla, or nerve of organic life, and hence exercises a beneficial influence over all the vital functions. It is particularly helpful in diseases of degeneration and devitalized conditions. In the bilious and lymphatic temperaments, especially where there is a tendency to obesity, massage will give you satisfactory results. Hysterical patients are benefited by massage if the reflexes are sluggish. Wherever you find cutaneous anesthesia, a slow or deficient response of the reflexes, you will get good effects from massage.

On the other hand, the nervous and sanguine temperaments, generally, are not benefited. Such patients are made worse by massage. They do not require stimulation of any kind. Massage exhausts them or intensifies the nervous condition.

There are people who complain of chronic discomfort; they never do anything much, yet are always tired. This fatigue is the result of a toxic condition of the blood. Massage rests such people. They experience a heavenly sense of peace and physical well-being afterward. It enable them to secure refreshing sleep and to eat with appetite.

VALUE OF COUNTER-IRRITATION.

The benefit to be derived from counter-irritation is one of the things we do not want to overlook in our pursuit of novelty. Especially is it useful in respiratory diseases. Turpentine is a general favorite for this purpose, but turpentine is volatile, and its effects fugitive, unless volatilization is prevented by the use of oiled silk, etc.; then it may blister or make the surface very tender and sore. Some skins will not tolerate it at all. Another objection to turpentine is the fact that it is so universally adulterated you cannot depend upon it.

The best counter-irritant in bronchial coughs, throat irritations, etc., is capscine plaster.

Suppose you are called to a patient, who has taken cold, is coughing incessantly, and cannot sleep. Cut a strip from a capscine plaster, two inches by four, and apply it just below the prominence of Adam's apple. In a short while your patient will stop coughing and go peacefully to sleep.

In many spasmodic affections, neuralgic pains, etc., you will derive benefit from counter-irritation. In hiccough, obstinate vomiting, dysenteric diarrheas, colics and congestions of any of the internal organs, counter-irritation will aid your treatment greatly.

The means for applying some form of counter-irritation promptly are to be found in every household, and will furnish you something to do while you make out your diagnosis and decide upon your treatment. It is always a relief to the patient and the family to see the Doctor set to work to do something. Counter-irritation conflicts with no treatment which may afterward be decided upon, and the amelioration which follows its use is gratefully remembered by your patrons.

STAMMERING.

Prof. Georges Delon, of Paris, France, read before the Academy of Medicine, of Cincinnati, a very interesting and instructive address on "Stammering." Stammering, stuttering and the impediments of speech, he said, are a fact and all theory is important, if not to explain at least to prevent them.

It would be difficult to refer the various defects of speech to one general cause. Sometimes the defect is organic or hereditary, at other times the result of contagion, which is nothing more than a bad habit, most generally both. Among people afflicted with stammering we ordinarily notice that the vocal organs are weak and stiff, wanting in strength and suppleness. In many cases, also, the tongue is too long or too short, too thin or too thick; the teeth, the lips, and the palate cavity affect some peculiar disposition, the root of the tongue completely covering or too much disclosing the opening of the throat. In a word, the conformation of the vocal organs is sensibly different from the normal appearance presented among persons who speak fluently. The respiratory organs are also in a bad condition and do not work regularly.

Another characteristic of a stammerer, while being a consequence and at the same time a cause of his trouble, is an extreme nervousness, and we may remark that it is not the least of the difficulties to overcome.

Another effect of that disease, which contributes to augment it, is an excessive timidity, which makes the disease both mental and organic.

It would be impossible to suppress stammering by modifying the organs of which we have spoken by means of a surgical operation. Some trials formerly made to that purpose have proved a failure, and have maimed the patient for life.

The stammerer must be able to speak with his organs just as nature has made them, since there is no possibility of changing them. The question is to teach him how to make the best possible

use of them, to harmonize their functions, and it is necessary, before all, to improve the condition of those organs, to give them the strength and suppleness they need.

There is, indeed, never a person afflicted with a defect so intense that he did not succeed at times, not knowing it, in pronouncing every sound and in articulating every movement; therefore, there is no organic impossibility to utter certain articulations. The defect lies in the ignorance as to how to direct the organs, difficulty of these organs to obey the will and inaptitude to produce some sounds and movements.

Although the contrary has been said by eminent men the cure of stammering is always possible in all cases where the organs have not been mutilated nor struck with paralysis and the cure must every time be sure, but not without hard work and perseverance.

The aim of treatment is to remove the organic troubles by regulating the respiration by giving to the organs of speech, by means of rational and repeated exercise, the necessary strength and suppleness. The effects rapidly manifest themselves, and the desired results soon obtained have also an influence on the general condition of health.

The pupil must be taught the formation of sound, the value of each letter or combination of letters, the articulation of movements and the regular and natural mechanism of all the vocal organs. Afterwards, by means of gradual and progressive exercises, the patient is brought to the natural tone of conversation.

The time required to pursue these periods of exercise after Prof. Delon's method is only three weeks; in many cases the pupil is able to attend his business after ten or fifteen days.

Advice to the pupils who have followed this course:

1. We call the attention of our pupils to the fact that they must apply themselves seriously and with perseverance to practice our system, until it becomes a settled habit with them.

2. Before speaking they must be careful to take a full and quiet breath and to renew their respiration according to the sense of the phrase, and never to speak when the air is exhausted.

3. Put into practice the observations made relative to the movements of the lips and tongue.

4. Preserve a good syllabation. This is easily hidden by the intonations and inflexions of the voice.

5. Speak with assurance, watch over the emission of your words, exercise full control over yourself, and the more you feel embarrassed the more you must speak slowly, coolly and deliberately, in a word be ever on your guard and watch yourself attentively.

6. We may sum up our system in three words: Respiration, syllabation and tranquillity. These include everything and they are equally indispensable.

7. Take advantage of all opportunities to speak slowly, as for instance when you are with your family or friends.

Prof. Delon does not believe in the possibility of self-cure, although he has met with some cases where, in the course of time, after maturity, the impediment decreased. The intelligent and enlightened direction of a professor is indispensable.

It is for the professor a work of patience, of devoted attention, which necessitates most peculiar care. The instructor must also act on the morals of the patient, succeed in receiving his complete confidence, and succeed in suppressing at the same time the material defect and the trouble arising partly from his timidity and peculiarities of temper to which persons afflicted with stammering are too often inclined.

Of course complete success depends, in a good measure, on the patient himself. Average intelligence alone is sufficient; but the greatest atention, the most constant care, good will, energy and perseverance are necessary to obtain a brilliant result.

The pupil must be prudent and patient, above all in the beginning, in order to forget his bad habit of speaking and to have him to acquire the new one. He must never lose sight of his aim to improve his speech, perfect his cure.

In short, to cure stammering is to teach the science of speech. We teach the pupil how to speak in the most natural way, without effort to gain absolute control over his organs, to become completely master of himself. The cure being once effected, the temper and social habits of the patient are advantageously modified. The stammerer once cured becomes quite a new man.

For a child under ten years it is very easy to rectify and im-

prove the organs, and it is only a work of patience. At the age of fifteen the defect has not become deep rooted and the cure is still easily effected; but after that age the cure is more difficult, the disease more serious, and it is only with a man of fully developed intellect, that is to say after the age of twenty-five, and the decrease of the nervousness characteristic of younger people, that we find great assistance in effecting a cure. If parents would give more attention to the defects of the young child beginning to stammer, if instead of laughing or becoming angry, they knew something about treating their child and teach him to speak and overcome the growing defect, if above all, parents were never to let any nervous child associate with any stammerer, or hear him speak, stammering would disappear.

DRINKS.

The Drinks, Food, Baths, Exercise and Clothing in Bright's Disease.

1. Drinks. Drink one-half pint hot water, clear, weak tea, or clear, crust coffee, one hour before each meal, and on retiring. Drink a cup (eight ounces) of clear tea or coffee, of beef tea (made from beef, freed from fat and connective tissue) at each meal. When thirsty, between two hours after and one hour before the next, drink hot water, clear tea, or beef tea freed from fat or gelatine. Take no other drinks of any kind. If the hot water sickens the stomach, sprinkle in a little salt, just enough to take off the flat taste.

2. Food. Eat broiled beefsteak, carefully freed from fat, connective tissue, cartilage and bone before cooking. Have it seasoned to taste with pepper and salt. For variety use the steak (broiled), which is cut through the center of a round of a lamb or mutton, broiled oysters, broiled quail, broiled grouse, broiled woodcock, broiled snipe, broiled partridge, and broiled codfish. The white of eggs may be taken raw or soft boiled. Avoid all fats as far as possible, only using salt and pepper for seasoning. Mustard, mixed up with hot water and lemon juice, or Worcestershire or Halford sauce, may be used on meats if desired. A little celery may be eaten at dinner.

Avoid pies, cakes, pickles, vinegar sauce, soups, cheese, cream, milk, yolks of eggs, fat, sugar, crackers, bread, biscuit, beans, peas, nuts, fruits (except the juice of the lemon), vegetables and all other food and condiments not previously mentioned. This rigid diet should be kept up till all traces of albumen and casts disappear from the urine.

When these have ceased to show themselves for a couple of weeks, the patient may be allowed one part of bread, toast, or boiled rice, by bulk, to eight or ten of the beef. After continuing

this departure for four weeks, without any appearance of albumen or casts in urine, the bread, toast, or boiled rice may be increased to one part, by bulk, to six parts of the meat, and a piece of butter the size of a hickory-nut allowed for seasoning.

After continuing these proportions for four weeks, if still no signs of albumen and casts show themselves, the bread, toast, or rice may be increased to one part to five of the meat, with a little increase of the butter. Continue all these proportions for one month. If no albumen or casts appear in the urine, increase the bread, toast or boiled rice to one part to four of the meat, and continue this for a month longer. If all is well at the expiration of this time, give the succeeding month, one part of bread, toast, or boiled rice, to three of the meat, with a little increase of the butter. Continue these proportions for three months, and then, if no sign of the disease shows itself, increase the bread, toast, or boiled rice to one part, by bulk, to two of the meat. Cracked wheat may now be brought in as a change from the rice. After continuing this diet for a couple of months, if all goes well, and no signs of albumen or casts appear in the urine, milk, warm from the cow, two hours after breakfast and dinner, may be taken. The patient should go out to the cow and drink the milk as soon as it comes from the teat, with all its animal life and heat. Begin with half a pint, and gradually increase till the patient is taking a pint at a time. After continuing this system of alimentation for a couple of months, if the patient continues to thrive, and is advancing gradually toward health, a little fruit may be indulged in after dinner. This indulgence, however, must be carefully controlled, and the patient not allowed over one peach, apple, orange, or bunch of grapes per day. Sugar and cream, also, may be very moderately indulged in, in tea and coffee.

This system of diet should be followed out for many months; and if no signs of the disease show themselves, it may be continued, gradually extending the diet list. It will be well, however, as a general rule, to continue to take two parts of lean meat (broiled or roasted) to one of all other food.

If at any time during the treatment, after the albumen and casts have disappeared from the urine, they begin again to show themselves, as the diet becomes more liberal, the patient should at once

come squarely down to lean meat diet, as he did at the start, and proceed cautiously as before.

The patient will lose in weight during the early part of the treatment, but this need not excite anxiety; for after the first few weeks, this loss will be checked, and a gradual gain will set in.

3. Meals. The meals should be taken at regular intervals, and it is better to eat alone, or only with those that are living on the same diet. All temptations should, as much as possible, be removed from the patient. If three meals a day are not sufficient to satisfy hunger, the patient may be allowed a nice piece of broiled steak between breakfast and dinner and between dinner and supper. These extra meals should be taken at fixed and regular intervals. If care is taken in following out this plan of diet, it will not be long before the system gets in good order, the digestion and assimilation will go on nicely, and the patient will eat largely and with great relish. You will often be assured by the patient, that there is no food so nice as a good broiled steak, and he will surprise you by eating all the way from one to two pounds at a meal. Never eat on a tired stomach. Rest one hour before and after each meal; eat slowly, and masticate the food well.

4. Baths. Take a soap and hot-water bath twice a week for cleanliness, after which rub with a coarse towel till the skin is red. Every night or day, sponge all over with hot water, in which put a teaspoonful of aqua ammonia to the quart of water; rub in well, and afterward wipe dry.

5. Exercise. Ride daily in an easy buggy or carriage as much as possible without fatigue. If not able to walk or ride, the body and limbs should be rubbed, kneaded and pounded all over for from ten to twenty minutes—morning, noon and night—by some one who has strength to do it thoroughly.

6. Clothing. Wear flannel or silk next the skin, and dress comfortably warm. On retiring, change all the clothing worn during the day, so that it may be thoroughly aired for the following morning. Keep the clothing sweet and clean by changing every second or third day.

The bed should be thrown open on rising and the bedding well aired during the day, and the bed not made up till the patient wishes to retire. Good ventilation is very essential. No tonics,

mineral waters, or external applications should be used; the physician will give remedies which are needed.

General remarks. Remember that the medicines cure nothing; they simply aid in keeping the machine in good running order, while the cure is effected by the rigid alimentation—an alimentation freed as much as possible from all paralyzing and fat-forming elements. The constant and long continued fermentation of vegetable food, fruits and sweets in the stomach and bowels keeps the digestive organs all the time filled with carbonic acid gas. This, after a while, so paralyzes the cells of the surfaces with which it comes in contact, that they lose their normal selective power, and begin to take up, little by little, and more and more, carbonic acid gas, vinegar, yeast, etc., which are carried into the circulation, and thus reach every part of the organism.

The heart, liver, lungs, kidneys, spleen, and brain are among the first organs to suffer. The organs that are the first and most liable to be paralyzed are the kidneys and heart, the next the portal glands.

It is not sufficient to look to weekly or monthly exposures for the cause, but to daily and hourly. In creating either healthy or diseased habits, the either healthy or pathological acts must be regular, frequent, and long continued, in order to become confirmed states of health or established conditions of disease. We must reach the underlying causes before we can cure. We may relieve and seemingly cure, without knowing or removing causes; but such relieving and curing is not permanent. We should remember that all these states and conditions we bring upon ourselves by something we are doing daily and persistently. This wrong doing must be stopped, then we may use with advantage any means that will help to gradually bring back and establish healthy states and habits in the diseased structures.

SMALLPOX.

The Management of Smallpox in the Smaller Municipalities.

Smallpox is a contagious and an infectious disease of which the specific germ has not been discovered. The exact period of its contagion has not been determined, although some who write from actual observation place it during the later days of the incubation stage, others, during the initial fever, others, during the pustular stage, while a few contend smallpox is contagious only in the later days of the disease. I am of the opinion, based upon several years of close study of the disease at the bedside and of text-books, that smallpox is contagious from the later days of the incubation period until the entire body is free of scabs and loose scales of epidermis; free of abscesses and abscess scabs. I consider an ulcer of the cornea the result of a pustule upon the cornea, capable of transmitting the poison of smallpox to the same degree as an unhealed smallpox pustule.

TRANSFERENCE OF CONTAGION.

The contagion is conveyed by the breath of the patient, by the pustules, by the scabs, by the emanations and the secretions. By contact direct or indirect, through letters, papers, clothing, bedding, articles of furniture, carpets, books, money, articles of merchandise, the air, by insects, flies, domestic pets, cats, dogs, rats, and other things which have become infected by contact with one having the disease.

The infection of smallpox is through the pus, the dried scabs, the scales of epidermis or the blood of the patient being deposited upon an abraded surface, this may be a pin prick, an abrasion in the nostril, upon the lip or elsewhere, the infection, however, is absorbed at once by the capillaries into the general system, increasing in character as it progresses until the system is thorough-

ly saturated with the poison and the explosion occurs. The rapidity or slowness of this absorption regulates the period of incubation.

PERIOD OF INCUBATION.

A period of from five to twenty-one days elapses before any effect of an infection in an unvaccinated individual appears, when he will feel myalgic, this is followed or accompanied by a chill, more or less severe, headache, backache, sometimes vomiting and abdominal pains, fever of a high grade supervenes and on the second or third day an eruption will appear upon the face, wrists, and soft palate, to gradually extend over the whole body. This eruption is papular and has a shatty feel, but every shatty feeling eruption is not smallpox.

The disease progresses with more or less severity, the papules become vesicles, then pustules, then scabs to finally leave the body more or less scarred.

DIAGNOSIS.

When confronted with a case suspected of being smallpox a diagnosis may sometimes be made almost immediately, but there are cases which come under observation where difficulties are extreme. In the early stages, before the eruption, meningitis, typhoid fever, pneumonia, later syphilis, erythema, impetigo, varicella, eczema pustulosa and other affections cause anxiety. Remember every pustule is not smallpox.

It is not my intention to write at any length upon the entire subject, Smallpox, but to note those points which will apply to the management of the disease when it appears in the smaller municipalities and the outlying districts, where hospital, disinfectant and police facilities are not available and differences in the diagnosis of the medical attendants lull the community into a state of false security or create one of panic.

In the largest cities every facility is afforded for the proper management of cases of smallpox. In some of them these appointments are very complete and the vigilance of medical inspectors, ward physicians and sanitary police enables the health officers to exercise control over the first recognized cases and in this way prevent a more serious infection. Where, however, these first

cases are not recognized, matters assume a serious aspect and an untold number of cases may develop, spreading infection far and wide.

NECESSITY OF HEALTH COMMISSION IN EVERY COMMUNITY.

In every community, and by community would be meant a thousand inhabitants with stores, business men and physicians, there should be an organized board or commission of health composed of physicians and business men, whose duties should be active and not merely perfunctory. This board should have the undivided support of the people in everything which concerns health matters and its decisions upon these matters should in general be final. Occasionally these decisions may be questioned, and these questions will arise when smallpox appears; since the expenditure of money is necessary for its management and financial losses to individual members of the community will follow. It is right here the board of health of the county must be consulted, but where the county is without such a board, appeal must be made through the proper officers to the State board of health.

WHAT SHOULD BE DONE WITH A CASE OF SUSPECTED SMALLPOX.

Let us suppose a patient under suspicion has smallpox and the disease is recognized, the question comes up at once, what shall be done with it? The disease never having occurred in the community before this time, no provisions have been made for its management. In this emergency a cool executve head will allay much of the panic which is rife. The patient must be isolated, if possible in a room at the top of the house; the inmates of the house must be vaccinated and if necessary re-vaccinated a sufficient number of times to show an immunity from vaccination; all the contacts, that is, all who have been in direct communication with the patient, must be vaccinated and quarantined under guard, and supported at the public expense if necessary; all suspects, that is, all who have been indirectly exposed, should be vaccinated and kept under observation, not necessarily quarantined, for a period *not less than sixteen days from the time of the last exposure.* The sick room should be as far as possible from the generally occupied rooms of the house. Select the top floor, two rooms at

least, remove such things as are unnecessary, trunks, carpets, woolen hangings and the more expensive ornaments. Leave the window curtains in place for they are needed to exclude the strong light of the sun, which in a measure produces inflamed eyes. Spread alongside the patient's bed, a rug, a piece of carpet or half a blanket, this is sufficient covering for the floor, and it can be destroyed. Provide proper ventilation without cold draughts. Preserve a comfortable degree of heat. Hang a sheet, wet with an efficient disinfectant, at the door. When necessary to sweep the floor use a broom covered with a towel or cloth, brush the sweepings into a paper and keep until ready for destruction; the same applies to dusting chairs, tables, and other things, but in doing this it must be remembered these things must not be shaken out a window.

ARTICLES NEEDED DURING ISOLATION.

A chamber, a bed pan, a urinal, a sanitary spit cup, a small pitcher, a feeding douche, a drinking glass, a medicine glass, handkerchiefs, and a small call bell will be all that are needed for use, excepting, of course dishes and other table auxiliaries. The greater majority of smallpox patients throw off a strong and disagreeable odor, sickening at times; it is best combatted with acetic ether or carbolic acid placed in shallow dishes and renewed as required. When acetic ether fills the air for some time it becomes offensive, but not to the same degree as the patient.

On the mattress of the patient's bed there should be a rubber sheet, oil cloth, oil silk or other protective covering.

A large wash tub or a portable bath tub is necessary to the sick room.

QUARANTINE RULES.

Nothing should be allowed to be taken from the sick room or the house except for disinfection or destruction, nor should the inmates of the house remain in this room longer than is absolutely necessary.

The guard line of the house and the quarantine line should not be closer to one another than twenty-five feet. Supplies of groceries and other things must be left at the guard line to be

taken to the entrance of the house by the guard where they will be deposited. In the case of liquids proper receptacles must be provided at both lines. Letters should be dictated to an outside party and not written by the inmates of the house.

DUTIES OF THE ATTENDING PHYSICIAN.

The physician who attends the case must be under the control of the health authorities. His visits must be as many as his patient's condition demands, once a day, once in two days and so on until the termination of the case either in recovery or death. It is necessary the physician himself should not become a means of spreading the infection, and with the object of preventing this spread, there are certain methods for him to pursue during his connection with the case. He must by all means be vaccinated, unless he has already been successfully vaccinated within a period of seven years, or has had an attack of smallpox; this applies with equal force to the members of his family. Upon his entrance into the house, he should remove his coat, vest, collar, necktie, cuffs and finger rings, he should then put on a suit of overalls or pajamas, buttoned down the front and fitting closely about the neck, wrists and ankles, he then puts on a pair of rubber shoes, sprays his hair, face and heard with a solution of corrosive sublimate, then adjusts a cap, preferably a baker's cap, upon his head. For handkerchiefs, gauze cut in suitable pieces is applicable to all purposes. No reason now exists for putting the hand in the pocket as the thermometer, the temperature chart, the pencil and the watch are in the sick room. Medicines prescribed should be sent to the house and not taken from the medicine case, should the physician carry one. The condition of the patient having been carefully observed, temperature and pulse, stools and urine recorded, directions as to diet and medication given, the disinfection and disposal of the stools superintended, he will without the exhibition of fear or hurry encourage his patient to assist him and the nurse in the successful management of the case, see the other inmates of the house, give them such information as will make them aware of the condition of the patient, but not give too favorable a prognosis, for smallpox is a very treacherous disease. His visit completed he will, without any further communication

with the people of the house, remove his cap, rubbers and protective clothing, wash his hair, face, neck, ears, mouth, arms and hands with a solution of corrosive chloride of mercury, taking care not to allow his eyes or gold-filled teeth to be injured. With clean water he may then wash himself, this however, is a matter of choice. The clothing which he removed at first is again put on and he is safe to continue his business. The mercuric solution in use by the health department of the District of Columbia, is as follows: Bichloride of mercury, 1 part; acid of hydrochloric, 2 parts; water, 1000 parts. For the sake of convenience Johnson's antiseptic tablets of hydrarg. chlor. corros., grs. 7.7; ammonium chloride, grs., 7.3; Bernays' tablets, corrosive sublimate, gr., $1\frac{3}{4}$; acid citric, grs., 87-100; each tablet in a pint of water makes a solution of the strength of 1 to 1000. Either of these solutions will cause cracking of the skin after frequent use, therefore a glycerine hand lotion is advisable at night.

DUTIES OF THE NURSE.

The nurse, who as a matter of course, must be an immune, either by vaccination or an attack of smallpox, should be provided with a washable wrapper and a cap which must be put on each time she leaves the patient's room; it must be kept in the hall just outside the sick room. She must not associate with the other inmates of the house more than is absolutely necessary. In this way general infection of the premises is in a measure avoided. Cheerfulness in the nurse is a trait to be encouraged, while levity and undue familiarity are to be discouraged. Patients must not be allowed out of bed until the greater majority of the scabs are off, they must be cautioned not to throw them on the floor, but must collect them in paper envelopes, bottles or chambers for disposal by fire.

DISINFECTION OF ARTICLES.

Sheets, pillow slips, towels, gowns, handkerchiefs and other washable material used by the patient or in the sick-room must be soaked in a solution of bichloride of mercury, carbolic acid or Camphenol, wrung out and either boiled thoroughly or burned. As a general rule the destruction of property is not to any extent

necessary. The stains made by the rupture of the pustules, fecal matter and medicines will disappear after proper attention and subsequent washings.

Abbott, in regard to the body and bed clothing, recommends an immediate immersion in the following solution: Carbolic acid, 3 parts; common soft soap, 2 parts; cold water, 100 parts. The articles are allowed to soak for two hours when they may be rinsed out in clean water and then laundried, being first boiled. The solution he recommends is cold and will destroy non-spore bearing bacteria as well as dissolve out blood and fecal stains. If these things are first soaked in hot water, boiled, subjected to the process of steaming, or soaked in a solution of bichloride of mercury, 1 to 1000, the stains are indelibly set.

METHOD OF DISINFECTION IN GERMANY.

In Germany wash that is soiled is treated by the following process: it is wrapped in a sheet wet with a sublimate solution, and this placed in a sack likewise moistened with a germicidal liquid. The sack is placed unopened in a solution containing 3 per cent. of soft soap, and heated to 50° C. for three hours and left in the same solution forty-eight hours after it cools. If not soiled with albuminous matter the wash is immersed in a solution of bichloride of mercury, 1 to 2000, with the addition of common salt. After this preliminary disinfection, the articles are boiled half an hour in a water containing: Petroleum, 10 gm; soft soap, 250 gm; water, 30 liters.

The addition of kerosene, water of ammonia, soapine, laundry bleach or other washing compound will, with the proper use of the washboard, hasten the removal of the stains.

DISINFECTION OF PREMISES AND PERSONS.

After the recovery of the patient the disinfection of the premises and persons is begun, and here the ingenuity of the disinfector has full sway. The contacts at the expiration of the quarantine period having been rendered immune by vaccination are given a full body soap bath, they are then taken to the door of a disinfected room where they strip off all clothing, they then pass into the room where they take a full bath of bichloride of mercury,

taking care not to injure the eyes. Disinfected clothing is furnished and they leave the premises. The patient having had several soap baths during the illness, goes through these processes and then the nurse, following the same course, the disinfection of the premises now begins.

The absence of sewerage will necessitate special care in the disposal of the fecal excretions, the cloths used about the patient, the remnants of food, the accumulating sweepings of the sick room and the dried scabs. A simple and very effective method of dealing with these matters is to procure a stout wooden box, thickly coat it on the inside with plaster of Paris, this renders it practically water-tight, partly fill it with sawdust, pour in carbolic acid rather freely and stir; with an adjustable lid the box is now ready. Bed-pans and chambers can now be safely emptied into it, stirring well during the emptying, other matters can also be placed in it. When sufficient matters have been accumulated the box may be emptied in the yard upon saw-dust, dried hay, straw or excelsior well sprinkled with kerosene oil and the entire pile set fire. The box is then prepared for the next day's accumulation.

Preference is given to carbolic acid over bichloride of mercury for the reason that the latter permits the formation of a coating of the albuminate of mercury and possibly would defeat the very object of its original application, that is, the destruction of the disease germs.

All dishes and other utensils should be washed first in a solution of bichloride of mercury, trikresol, or one of the preparations of carbolic acid, then rinsed in clear water before being used again; they must not be handled by anyone except the nurse and not allowed to be taken from the sick-room.

ISOLATION QUARTERS.

For the accommodation of transient visitors or tramps in a village, some provision should be made for the proper sheltering of such of these persons who may be infected with such diseases as smallpox, scarlet fever or diphtheria. While this is true, it is not to be supposed expensive buildings will be erected. The tent hospital and barracks or portable hospital should be a part of the belongings of every municipality. It is not necessary to destroy

these as their thorough disinfection and fumigation are easily accomplished. They are always ready be the emergency what it may. Some larger cities rely on tent hospitals for smallpox, others upon portable buildings.

It is not necessary to discuss vaccination further than to say it must be done where protection from smallpox is desired.

School Boards have the right to issue regulations governing the attendance upon classes of such children as have been exposed to the infection of smallpox and other diseases irrespective of any regulations issued by Health Boards. Therefore, children from infected premises should not be allowed to return to school until sixteen days after the disinfection of the premises for smallpox. All books used by the children must also be thoroughly disinfected or destroyed. By "disinfection of the premises" is meant the time the premises are declared free from infection.

MORTALITY RATE.

The mortality rate of smallpox is from 2 per cent. to 80 per cent., an average of 22 per cent. will be the rate where cases receive medical attention and care. Many cases will recover without any care, some will continue their daily labor with little or no inconvenience, still this is no argument for a do-nothing policy. The rate in discreet cases, where cardiac or pulmonary lesions do not exist may be stated at 2 per cent. for all ages; in semi-confluent and in confluent cases the range is great, while in hemorrhage cases it is uniformly fatal, 100 representing the rate. A very great difference exists between hemorrhagic smallpox and those cases where hemorrhage into the pustules occurs, in this latter variety the pustules take on a bluish appearance and recovery following gives the impression of recovery after hemorrhagic smallpox.

PROPER DISPOSITION OF THE DEAD.

In my opinion the proper disposition of the body dead of smallpox, or of any infectious disease, is cremation. A source of infection is thereby wiped out, this plan, however, is not popular, therefore earth burial will continue.

A body properly prepared for its final disposition has been treated in the following manner: Washed in a solution of bi-

chloride of mercury, 1 to 80; sprinkled freely with chloride of lime the orifices of the body closed with absorbent cotton; the night clothing adjusted; it is then wrapped in a sheet well wet with the bichloride of mercury solution, this sheet is tightly pinned or securely sewed, the whole is now placed in a blanket and put in the coffin. The coffin lid is nailed down and then carried to the place of burial. The grave must not be less than seven feet deep, lime is thrown in, the coffin lowered, more lime is thrown in and the grave filled. This grave must never be opened.

Public funerals, viewing the body and a gathering of friends at the place of burial are to be prohibited. Carrying a body from one state to another is generally prohibited by law, so should the transportation from county to county in the same State.

SUGGESTIONS TO SMALLPOX NURSES.

Give particular care to the disinfection of the person. A bath should be taken at least once every day. A Germicidal Soap, or another designated Cresol Soap is advisable for this bath. As much as possible the nurse should avoid sitting down in the sick-room, especially sitting upon the bed or even leaning against the bed, walls or furniture.

Wash the hands with Synol or Cresol Soap after each contact with the patient.

Exercise regularly, if possible in the open air.

The nurse should be given as much sleep as usual. If the patient needs constant care, another attendant should be procured if possible. The nurse should wear a washable uniform; a washable cap should cover the hair.

The following rules are applicable to smallpox as well as other contagious diseases:—

Do not put to your lips any food, drink, dish or utensil that the patient has touched or that has been in the sick-room, until it has been washed and disinfected.

Do not go into the sick-room with an empty stomach. Do not eat or drink in the sick-room.

Keep the hands free from all discharges from the sick. If the hands are accidentally contaminated wash them as soon as possible with Synol Soap.

If the hands are scratched or cut, put court plaster or adhesive plaster over the wounds. Never touch the sick with sore or scratched hands.

Kill or drive out of the sick-room all flies or other insects. Be particular to destroy all mosquitoes.

Keep the room at a temperature of 70°. Keep the room always well aired, yet at as even a temperature as possible.

Let in all the direct sunlight possible, unless it seems to hurt the patient's eyes.

If the patient's eyes are affected by sunlight paste red paper over the glass or paint them with a red paint. When thus treated the light will be very beneficial.

Bedding should be changed frequently. Throw the soiled bed clothes into a tub or pail containing a solution of Camphenol, (one teaspoonful of Camphenol to a quart of water), before removing them from the room. In taking the soiled bedding from the room to be washed, wrap it in a sheet dampened with this Camphenol solution.

Towels, napkins or bandages should always be clean. They may be used more than once it they are taken from the room and disinfected every time.

All dishes, cups, glasses, spoons and utensils which have been used in the sick-room should be disinfected before being taken from the room. Scalding hot water containing from two to four spoonfuls of Camphenol to a quart of water should be used.

Any article such as shears, toys, combs, brushes or anything handled by or that has come in contact with the patient, should likewise be disinfected before being removed from the room.

It is a good safe rule in these diseases to consider that everything that has been carried into the sick-room has become infected, and needs disinfecting before being carried out and used elsewhere.

The dishes which the patient uses should not in turn be used by others, or washed with other dishes. The food should be brought into the room just before the patient is ready for it.

All articles of food left over should be burned, or else mixed with Camphenol and buried.

Milk or other food must not be allowed to stand in the sick-

room, and whatever drink or food has been in the room must not be used by others or fed to dogs or cats.

Bodily discharges from the sick should all be considered dangerous.

Excreta from the bowels or kidneys should be immediately covered with a solution of Camphenol (one teaspoonful of Camphenol to one pint of water).

Vessels containing the discharges and Camphenol should be shaken or otherwise stirred, and after a half hour may be thrown into the sewer or be buried in the ground. The discharges should never be thrown where they might contaminate a running stream. They should not be buried within a hundred feet of any well or stream.

Vessels used to catch discharges should be thoroughly disinfected with boiling water containing a tablespoonful of Camphenol in each pint.

VACCINATION.

The efficacy of vaccination and the need for its continuance is beyond dispute. There are at hand many figures, statistics compiled from all nations, which conclusively show an enormous lowering of the death rate traceable to vaccination alone. However the frequency of dangerous consequences after the inoculation and undoubtedly due to it are recognized. Our belief in regard to these cases is that the difficulty is caused by infection at the time of the operation; that is, to carelessness on the part of the vaccinator. I consider the trouble as arising in nearly every case from the fact that the inoculation has been attempted by unskilled persons or that the physician has been careless.

One of our best authorities describes his method of vaccination as follows:

"The skin is made as nearly aseptic as possible by scrubbing it with soap and water, using an ordinary surgical brush. Recently I have used Germicidal Soap, which I find to be powerfully cleansing and convenient, while at the same time it does not interfere with the success of the inoculation. I next treat the skin with alcohol, then with ether, again with sterilized water, and finally dry the surface with sterilized gauze or cotton. I scratch the skin superficially over an area of about one quarter of an inch,

making four or five parallel scarifications, and as many more across the first at a right angle, causing no bleeding if possible.

"The lymph is conveyed to the scarifications and thoroughly rubbed in with the spade which, as well as the needle, should be furnished sterile by the manufacturers. Before I devised my shield I allowed the serum to dry exposed to the air. After drying I covered the wound with an aseptic gauze compress, fastened with strips of adhesive plaster. I give the patient very strict instructions as to the importance of returning for inspection and possible after-treatment, and not to disturb the dressing."

EXCESSIVE EATING AS A CAUSE OF DISEASE.

There is no doubt that an excessive indulgence of the appetite is a recognized cause of a long list of ailments, but the question is what constitutes excess in this matter. All that is not appropriated is excess and the system must suffer eventually from the non-physiological effort to rid itself of this excess.

I have met with cases of intractable eczema pudendi in women past middle life, of sedentary habits, and eating three large meat meals a day, and trying by all means in their power to stimulate their appetite, under the erroneous impression that they are "keeping up their strength." In these and similar cases, medicine and local treatment are almost equally useless, unless there is at the same time, a thorough reform in the diet.

The first point is to deprive the patients of sugar as an article of food, except just enough to make light puddings palatable. The reason for this is that much of the sugar passes the liver unchanged, and is therefore worse than useless as a food.

The next point is to greatly reduce the animal food, especially mutton and beef, and to substitute for it simple clear soup, and poultry or fish in moderate quantity once a day. Lastly, the chief part of the daily diet should be made up of light farinaceous and milk food, such as rice, bread and macaroni. This is contrary to the view often entertained that saccharine urine should be treated by animal diet and that starch should be as much as possible excluded.

Whatever good may result from such a diet in some cases, I am quite sure that it does not answer in those to which I refer; on the contrary exactly the reverse holds, and the old routine practice, except so far as sugar is concerned, is quite wrong.

Many times the sugar disappears from the urine and the eczema departs under a change of diet such as I have above recommended.

Many people at sixty, when the tissue changes are slow, eat as much, or more than they did at twenty, when all the processes of change are at the height of their activity; what wonder then, that unnatural work is thrown upon the skin, kidneys, and other excreting organs of the body.

There is some substantial truth in the saying that "small eaters live the longest."

SUGGESTIONS CONCERNING EDUCATION OF YOUTH.

Overworking the Undeveloped Brain—Headaches in Children.

"Overwork," properly so-called can only occur when the organ upon which the stress of the labor falls is as yet immature, and therefore, in process of development. When an organ has reached the maturity of its growth it can only work up to the level of its capacity or faculty for work. Fatigue may produce exhaustion, but that exhaustion will come soon enough to save the organ.

Repeated efforts may, under abnormal conditions, follow each other too rapidly to allow of recuperation in the intervals of actual exertion, and as the starting point will, in each successive instance, be lower than the previous state, there may be a gradual abasement; but even this process should not seriously injure a healthy and well developed organ. In short, a great deal of nonsense has been said and written about the "overwork" of mature brains.

Nevertheless there can be no room to question the extreme peril of overwork to growing children and youths with undeveloped brains.

The excessive use of an immature organ arrests its development by diverting the energy which should be appropriated to its growth, and consuming it in work.

What happens to horses which are allowed to run races too early happens to boys and girls who are overworked at school.

The competitive system as applied to youths has produced a most ruinous effect on the mental constitution which this generation has to hand down to the next, and particularly the next but one ensuing.

School work should be purely and exclusively directed to

development. "Cramming" the young for examination purposes is like compelling an infant in arms to sit up before the muscles of its back are strong enough to support it in the upright position, or to sustain the weight of its body on its legs by standing, while as yet the limbs are unable to bear the burden imposed on them. A crooked spine or weak contorted legs is the inevitable penalty of such folly.

Another blunder is committed when one of the organs of the body,—to wit, the brain—is worked at the expense of other parts of the organism, in face of the fact that the measure of general health is proportioned to the integrity of development, and the functional activity of the body as a whole in the harmony of its component systems.

No one organ can be developed at the expense of the rest without a corresponding weakening of the whole.

HEADACHES IN CHILDREN.

When a child complains of headache most careful scrutiny is demanded, and if it be too young to describe its sufferings its manner and appearance are highly suggestive of some cerebral disturbance.

Look at the little child of some ten or twelve months old, who is well developed and comes of healthy parents. There is the excitement of dentition, and the little thing is observed to put its tiny hand to its head, which it rolls, perhaps, from side to side, and the anxious mother at last detects a slight irregularity in the muscular movements of the eyeball. Reflex nervous irritation is conveyed through the fifth nerve to the brain, and irritation so awakened may be followed at any moment by a convulsion.

The child is wakeful, uneasy and restless. The brain, so needful of rest at this early period of life, is susceptible of mischief.

Habitual headaches in older children indicate an exhausted and irritable brain, and if intellectual exertion be carried too far in such cases mischief is likely to ensue. It seems extraordinary that educated persons who have the care of young people should not see this danger in the anemia produced by

overstudy, the irritability and excitability of manner, and the impossibility of concentration, so necessary to the accomplishment of any undertaking.

If intellectual exertion be carried beyond a certain point the brain becomes anemic, fatigued, and the nutrition in the ganglionic cells of the cortex becomes impaired, diseased, or in some way altered from health. Whatever may be the exact change in these cells, due perhaps in a great measure to the absence of healthy blood, the inference is most probably correct that children so suffering can not readily grasp new ideas; and if strong and powerful efforts are put forward in this direction the knowledge is not retained, the object is frustrated, one idea is mixed up with another, and confusion results.

This, I apprehend is just enough to illustrate the grand problem that the body must be looked to as well as the mind; and the younger the child, the greater is the necessity for the delay of intellectual training. And it does strike one as very extraordinary that the nervous system, which is the last to attain complete development, should be the first to be overtaxed in this age of forcing and strain, when revolutionary ideas are apt to overrule the judgment.

It is not that the moderate exercise of the brain in early life is injurious; on the contrary, it is conducive to health. The mind is then flexible and plastic, impressions are enduring, and habits of concentration are easily acquired. It is the premature and excessive exercise of it which is harmful when the bodily powers need the chief attention.

No rigid rules, no cast-iron system, will do for the training of all children. All are not cast in the same mold. Any system of education must be elastic, since mediocrity is the rule; and if more be expected of some children whose physical development is at the same time feeble, then disease or premature ill health is the consequence.

Headaches are often hereditary. They have attacked children of the same family who have been brought up at a distance from one another, and whose surroundings have been quite different.

In such cases there is something peculiar in the nervous system itself—a tendency to nervous disease. It will, I think, be

often found on inquiry, that the parents of such children are liable to nervous disease, nervous exhaustion, paralysis, etc., and perhaps some children of the family have had epilepsy, chorea or asthma.

In many instances too there is some faulty condition of the blood. The brain, badly nourished through a scanty supply of blood, and that poor in quality, loses its balance and cannot resume its tone.

Neuralgic headache (one-sided headache) is not a very common type in children, but it oftener occurs than is generally supposed. It is met with chiefly among three classes of children:

1. Those of the neutral temperament, whose nervous system is easily fretted, excited, and therefore sooner exhausted. If such children are pressed too much with their studies, then they the more readily suffer. Any degree of intellectual exertion is exciting to children of timid and delicate constitution, who are not only too anxious to learn, but can not throw their studies off the mind.

2. Those children who have been reduced by some long and exhausting illness, in-door confinement and bad air.

3. Those born of delicate parents, and who are badly fed.

SLEEP.

The Physiology of Sleep—The Necessity of Sleep—The Sense of Fatigue—Amount of Sleep Necessary—Dreams.

THE PHYSIOLOGY OF SLEEP.

It has been sufficiently demonstrated that during sleep the brain is relatively anemic. During sleep, all the blood-vessels of the brain are under a diminished pressure, and this lessening of the active flow corresponds with a diminution of cerebral function.

This is in accordance with the facts of physiology generally: the performance of function is characterized by vascular fullness and activity; the cessation of function is attended with decrease of the vascularity and volume of a part.

The immediate cause of sleep, however, is not simply the shutting off of a portion of the blood current from the brain. The lessening of the blood supply is rather the accompaniment than the cause of sleep. The true cause is the torpor of the cerebral cells.

This torpor may be the result of waste, unbalanced by repair, of the hemispherical ganglia, which become functionally inactive owing to diminution of oxidizing material, as well as to clogging of the venous and lymphatic channels by the accumulated debris of organic combustions.

But this is not all. As the effete products of cell function have a paralyzing action on the cells themselves—a truth exemplified even in the protoplasmic life of microbes, which are now known to generate by their activity poisons.

Lactic acid is one of the principal waste products whose retention in the blood causes sleep, but lactic acid is only one of the toxic products of the living economy; the urinary salts are also destructive of cell life, and every cell is a laboratory

of poisons, which exercise their injurious effects on the organism as soon as the emunctories are incompetent thoroughly to perform their task of elimination. Bouchard, who has performed many interesting experiments on animals by injecting the urine of various physiological and pathological states, finds that the urine of the day possesses a poison twice as great as that of the night, and that the former produces narcosis, while the latter possesses convulsivant properties.

THE NECESSITY OF SLEEP.

It is a law of nature that every kind of force or energy emanating from the organic or inorganic world shall be the exact equivalent of some pre-existent kind of force. This is the doctrine of the correlation and equivalence and persistence of force now universally admitted. The power that drives the piston rod of the steam engine existed latent in the coal as static force, originally coming in the form of dynamic force—light and heat—from the sun, the great primal source of power.

In the galvanic battery we see chemical force converted into electricity, and in the conducting wire we have the transformation of electric force into heat. In the organic world we witness the metamorphosis of light, heat and chemism into those forces which are called vital.

It is a truism to say that all organs that are exercised must have rest. After every considerable effort of the muscular system, a greater or less incapacity for further exertion results, and the subjective expression of this incapacity we call fatigue.

The tired muscles obtain a measure of repair during the intervals of work, and such intervals may be frequent during the waking hours. We often rest one set of muscles when we are working another set. Even those actions which are most continuous, as respiration and the pulsations of the heart, have distinct periods of suspension. It is a mistake to suppose that the heart and lungs never rest.

After each contraction and dilatation of the heart, there is a pause of one-fourth the time of a beat in which the heart rests and is repaired. Hence the heart may be said to rest six hours

out of the twenty-four. After each respiratory act, there is a pause equal to one-third of the whole time; thus the lungs rest eight hours of the twenty-four. But for the busy brain, there are no sufficient seasons for rest during the working hours; repair and waste are not evenly balanced. Waste has got in excess of repair. Not that no repair has been going on during the working hours—nutrition is actively going on at all times, and in the spinal cord and medulla oblongata it is probable that repair ever keeps pace with waste, or falls but little in arrear, equilibrium being quickly restored. The peculiar functions of these lower centres are of an automatic kind, stimuli always producing responsive discharges along established lines.

It would certainly be for the advantage of every species in the struggle for existence that those automatic functions should be performed at such an even, uniform rate that repair and waste should be in equilibrium. Such is the condition of these nerve centers. From minute to minute brief pauses occur, when waste is made good by repair. This was shown to be true in respect to respiration, the pause after each respiratory act giving the bulb sufficient time for repose and repair.

With the cerebrum the case is somewhat different. "Its substance is consumed by every thought, by every action of the will, by every sound that is heard, by every object that is seen, by every substance that is touched, by every odor that is smelled, by every painful or pleasurable sensation, and so on. Each instant of our lives witnesses the decay of some portion of its mass, and the formation of new material to take its place."

Hence the need of that periodical repose we call sleep.

THE SENSE OF FATIGUE.

Subjectively, sleep is preceded by a sense of fatigue, which is the more pronounced the greater the labor which has produced it. Fatigue may be regarded as an expression of waste unbalanced by repair; lactic acid and creatine accumulating in the blood cause this sensation by their paralyzing action on the cells of the cortex.

The sensation of fatigue is in a certain sense a guaranty of safety for the muscular apparatus. In certain pathological states, often even by the energy of the will alone it may be overcome. But there then follows a still greater realization of fatigue, which may be the result of complete exhaustion.

Normal fatigue easily leads on to a condition of sluggishness and languor known as sleepiness. The eyelids feel heavy, the muscles relax, there is an instinctive disposition to shirk work, an inability to fix the attention on anything whch requires thought, a sensation of supineness and enervation, a considerable obtuseness of the senses. Yawning is an indication of weariness. "The head nods and droops upon the breast, and the body assumes that position which is most conducive to ease, comfort, and entire muscular inactivity."

Another subjective antecedent of sleep is failure of the attention. To this end absence of sensorial impressions is an important condition of sleep. There are certain influences which are predisposing causes, such as darkness and silence and muscular rest.

Habitual sensation, as the continuance of an accustomed sound, are of the same class. It is owing to the power of habit that some persons can sleep more soundly in the neighborhood of noisy mills and cataracts, than elsewhere, the attention of the individual being more attracted by the suspension of the sound than by its continuance; for as the exercise of the attention implies an awakened and concentrated consciousness, during such exercise sleep is, in the nature of the case, impossible. Other predisposing causes are gentle tranquilizing sounds, such as the piping of crickets, the rustling of foliage, the hum of bees, hearing a dull book read, etc., which conduce to sleep by making on the sensorium a series of monotonous impressions which are neither interesting enough, nor powerful enough to keep the attention aroused.

AMOUNT OF SLEEP NECESSARY.

As sleep is a constructive process, it would seem that the amount of sleep taken should be proportionate to the mental and physical exercise of the waking hours. The reparative

value of sleep, however, is more dependent on the depth and intensity of the sleep than on its duration. The invigoration which follows sound, dreamless sleep is remarked by every one; a little sleep of this kind is worth many hours of disturbed, dreamy sleep. It would seem that absolute quiescence and suspension of function is that condition of the cortical cells most favorable for nutrition and repair.

The principle of making up for lost sleep is a correct one; persons habituated to six or seven hours sleep a day may pass without inconvenience a night or two without sleep, provided they can make up for this loss by a more prolonged sleep afterwards.

It is by dint of the habit of sleeping profoundly when they do sleep, that some persons sleep but few hours out of the twenty-four, and yet continue in health. Frederick the Great and John Hunter are said to have required only five hours of sleep a day; Pitt used to restrict himself to three hours. The briefest sleepers are generally men of the greatest mental activity. The best scholars, thinkers and literary men, according to Carpenter, do not spend more than one-fourth of the diurnal cycle in sleep.

Persons of lymphatic temperament are said to be the greatest sleepers, from natural lethargy of the nervous centers.

Hard, muscular toil promotes somnolence more than hard brain work; the husbandman or day laborer sleep longer and more profoundly than the student or professional man. The waking state of such persons is characterized by great activity; the wear and tear of the muscular system is immense, and long seasons of rest are needed, during which the physical and vital energies shall be largely occupied with the work of muscular reparation.

Blood goes from the brain to the muscle, and there is relative anemia of the cortex, a condition favorable to the inertia of sleep. Moreover, the cerebral activity of even the humblest day laborer is not inconsiderable—the sensory, perceptive, and voluntary faculties are kept constantly employed during their daily occupations. They often toil for hours in obedience to a painful exercise of the will, amid an almost overpowering sense of muscular weariness. Now, a purely voluntary act fatigues the brain more than an involuntary or automatic one.

Hence, the protracted sleep of the day laborer must be due in a considerable degree to cerebral waste.

The relationship of muscular exercise and muscular fatigue to the intra-cranial energies and circulation may not be demonstrably clear but the fact is none the less certain that muscular exertion is one of the most powerful promoters of sound sleep.

DREAMS.

Dreams, from a psychological point of view, constitute the most interesting phenomena connected with sleep; from a medico-physiological point of view, they are chiefly of interest as indicating that sleep is not sound, or only partial.

In dreams, the cerebrum is in part awake; the automatic centers of mind resume a measure of their activity, while the will is still dormant. A limited area of brain is brought into a condition of waking excitement; certain ideas and emotions result, which, not being modified by comparison, and reflection by other ideas and feelings which are asleep, present a phantasmagorical succession of images to the consciousness.

Dreams are principally of interest to the physician as being an indication of unsound sleep. The dreaming period seldom comes on in health till the time for waking approaches. Then the centers that are most automatic, one by one recover their functional activity, those which represent the higher mental powers still remaining dormant. It is doubtless true that in sound sleep we never dream. The condition of sound sleep is one of complete psychical inertia.

If the dreaming period comes on early, it is evidence of some irritation in some part of the body which is disturbing the rest of the brain. Thus, unseasonable dreaming is often symptomatic of indigestion, teething, a febrile condition, the influence of some toxic agent (tea, coffee, alcohol, etc.), and when dreams become pathological, it is necessary for a physician to discover the cause and remedy it.

INSOMNIA.

If the essential condition of sleep be torpor of the centers of conscious mentality, everything which excites these centers and keeps them functionally active will promote insomnia.

In discussing the causes of insomnia I consider two divisions: Psychical and Physical.

Under the head of Psychical Insomnia are included cases of sleeplessness due to mental emotion, to thought, worry, etc. Insomnia of the psychical order is illustrated in the student who is anxious about his examinations and cannot sleep until the result is known; in the candidate for political honors who cannot sleep until the election is over and his fate is decided; in the mother who will watch over her sick child night after night, not sleeping till the crisis of the sickness is past. Multitudes of such instances happen in daily experience. In order that natural sleep may occur, the mind must be tranquil.

The pure hypnotics—chloral, paraldehyd, urethan, sulphonal—given according to directions of physician, are generally quite efficacious in the insomnia due to emotional causes, the intensity of the insomnia being of course proportional to the intensity of the disturbing cause. Business cares and anxieties of all kinds, and homesickness and disappointments, often produce a most obstinate wakefulness, which hardly yields to even large doses of chloral; sulphonal is almost without effect.

Under the head of Physical Insomnia, I shall first, take up the group of physical causes, foremost among which are organic conditions productive of pain. If an irritation emanating from any organ or tissue may keep consciousness aroused and the brain active when not painful, how much the more likely to produce insomnia when raised to that degree of intensity known as pain.

Pain may be due to inflammatory states of the nerve centers or their membranes, or to functional disturbances of nerves, constituting neuralgia; to conditions of anemia or hyperemia; to inflammation and suppuration; to ulcerative processes; to the pressure of tumors, exudations, etc.

The first thing to be accomplished is to remove the cause, if possible. Sometimes this is an easy thing to do, as when the pain is from a tooth or an abscess; on the other hand there are times when a narcotic is imperatively required. In antipyrin, phenacetin, acetanilid, we may often find good and comparatively harmless substitutes for opium or morphine, and when

the former prove sufficient to quell the pain, they should always have the preference.

INSOMNIA DUE TO OVERWORK OF THE BRAIN.

Prolonged study, constant application to business, literary undertakings, speculative enterprises, etc., demanding vigilant thought and entailing much worry and anxiety are fruitful sources of insomnia. At the same time, exhaustive mental toil may be carried on with impunity provided the hours of sleep be not interfered with, and that suitable seasons of relaxation and diversion be snatched during the working hours. It is unremitting mental toil and worry that kills.

With regard to the treatment of insomnia from mental overwork, the first cause demands attention. The student must curtail his studies, his hours of work; must take more rest, more recreation, more exercise. The appearance of insomnia, or dreamy, restless, unrefreshing sleep in children should generally be the signal for removing them for a time from school and providing suitable sports and recreations, a course of gymnastics, and other measures calculated to invigorate, subdue restlessness, and procure natural sleep.

In comparatively tractable cases of insomnia from overwork, a tablespoonful or two of old whiskey at bed-time will often work like a charm; while many a glass of bitter alé has a still better effect.

Muscular exercise before going to bed—a long walk in the open air, dumb-bell exercise, etc., is often of benefit. Sleep is much more certain to follow muscle-tire than brain-tire.

Any one troubled with insomnia should avoid, particularly in the evening, indulgence in tea, coffee, tobacco or spirits; also from reading, writing and other mental labor.

The application of cold to the head, hot foot bath or the general warm bath, are often of benefit; or the trunk and limbs may be bathed with cold water, followed by a brisk rubbing to induce a reactionary glow. The patient should cultivate the habit of going to bed at a regular hour, and of rising with punctuality. The bed-room should be well ventilated, and the head raised upon a high pillow.

The diet must be adapted to the temperament and digestive powers, the last meal being taken some three hours before going to bed. On account of its stimulant and derivative action, turpentine in thirty-drop doses at bed-time is a powerful aid to sleep. It is easily taken in capsules. If it is found necessary to resort to hypnotics, the bromides are seviceable.

To restore tone to the nervous system, a combination of nux vomica with hydrobromic acid is efficacious.

Hydrobromic acid, 6 drachms.
Tinct. nux vomica, 2 drachms.
Water, to make 6 ounces.

A tablespoonful in a wineglassful of water twice a day, before meals.

INSOMNIA RESULTING FROM DIGESTIVE DISTURBANCE.

That indigestion causes insomnia by exciting the cerebrum is a matter of common experience. With many persons, even the active exercise of digestion, if this be at all difficult, is incompatible with sound sleep. Such individuals refrain from lunching or partaking of a hearty meal before going to bed. Some can not drink a glass of milk or eat a biscuit late in the evening without atoning for the indiscretion by hours of sleeplessness.

One of the most frequent symptoms of indigestion is flatulence. The stomach is inflated and distressed by the gases of decomposition; the distended stomach presses on the thoracic organs, embarrassing the heart and causing troublesome palpitations.

However, in persons with healthy stomachs and normal arterial tone the digestive process is not prejudicial to sleep. Somnolence, in fact, often attends digestion, especially after a hearty meal. This has been attributed to the flushing of the stomach—at the expense of the cerebrum—which is a necessary condition of its function.

Digestion normally occurs without attracting the consciousness and there is no reason why on proper occasions sleep should not follow a hearty meal in men as well as in carnivorous animals.

Insomnia naturally comes in as one of the consequences of

over-eating and over-drinking, for a burdened stomach will not let the brain rest. Food should be eaten slowly and thoroughly masticated; those that "bolt" their food are sure to eat to excess.

Indigestibe foods, including foods improperly or insufficiently cooked, and foods that most persons of sedentary habits find hard to digest, as unripe fruit, pastries, hot bread, fried pork, confectionery, should be avoided. Of course much depends upon the muscular work done; it is, especially, those of sedentary habits that are upset by a rich diet.

Again, foods of themselves sufficiently digestible may become indigestible if too many kinds are eaten at a meal. This brings us again to the evils of excessive eating.

SOME VALUABLE PRESCRIPTIONS FOR HEADACHES OF VARIOUS ORIGIN.

Uraemic headache with deficient renal action.

Citrate potash, 1 scruple.
Inf. digitalis, ½ ounce.
Inf. buchu, ½ ounce.

This amount 3 times a day.

Or

Citrate potash, 1 scruple.
Spts. juniper, 1 drachm.
Sweet spts. nitre, 20 minims.
Decoc. scoparii, 1 ounce.

This amount 3 times a day.

Headache from malarial poisoning.

Disulphate quinine, 10 to 15 grains.
Sulph. acid dil., 10 minims.
Syrup, 2 drachms.
Water, to make 1½ ounces.

To be taken 2 or 3 hours before the expected paroxysm and afterwards a third part 3 times a day till cinchonism is produced. Should the headache recur from time to time give the following:

Fowler's solution, 1 drachm.
Tinct. belladonna, 1 drachm.
Water, to make 1½ ounces.

A teaspoonful in wineglass of water 3 times a day.

Neuralgic headache with history of syphilis.

Liq. arsenate potass., 1 drachm.
Tinct. quinine, 1½ ounces.
Bichloride hydr., ½ grain.
Water, to make 6 ounces.

A teaspoonful in wineglass of water 3 times a day after food.

Headache associated with gouty diathesis.

Liq. arsenate potass., 1 drachm.
Liq. potassae, 1 drachm.
Tinct. colchici, 2 drachms.
Tinct. lavandulae co., 3 drachms.
Water, 6 ounces.

A tablespoonful in wineglass of water twice a day after food.

Dyspeptic headache with flatulence, acidity and pyrosis.

Bicarbonate soda, 1 drachm.
Bismuth subcarb., 1 drachm.
Pulv. acacia, 1 drachm.
Aromatic spts. ammonia, 2 ounces.
Syrup ginger, 3 ounces.
Water, to make 8 ounces.

Two tablespoonfuls 3 times a day half an hour before food.

Bilious headache with flatulence.

Sulphate magnesia, 6 drachms.
Carbonate magnesia, 1 drachm.
Tinct. lavandulae co., 3 ounces.
Peppermint water, to make 8 ounces.

A sixth part to be taken early in the morning and repeated as may be necessary.

Neuralgic headache with constipation.

Disulphate quinine, 12 grains.
Dil. sulphuric acid, ½ drachm.
Tinct. perchloride iron, 2 drachms.
Spts. chloroform, 2 drachms.
Sulphate magnesia, 1½ ounces.
Syrup ginger, 1 ounce.
Water, to make 12 ounces.

Two tablespoonfuls three times a day.

Congestive headache.

Ammonia bromide, 1 drachm.
Aromatic spts. ammonia, ½ drachm.
Water, to make 1½ ounces.

To be taken on rising in the morning.

Neuralgic and nervous headache marked by general debility and defective nutrition.

Calcis hypophos. 80 grains.
Tinct. perchloride iron, 3 drachms.
Disulphate quinine, 16 grains.
Strychnine, ½ grain.
Spts. choloroform, 2 drachms.
Syrup, 1½ ounces.
Water, to make 8 ounces.

A tablespoonful 3 times a day in a wineglass of water.

NURSING.

VENTILATION AND WARMING—TAKING FOOD—WHAT FOOD?—BED AND BEDDING—LIGHT—CLEANLINESS OF ROOMS AND WALLS—PERSONAL CLEANLINESS—CHATTERING HOPES AND ADVICES.

DISEASE A REPARATIVE PROCESS.

Shall we begin by taking it as a general principle—that all disease, at some period or other of its course, is more or less a reparative process, not necessarily accompanied with suffering: an effort of nature to remedy a process of poisoning or of decay, which has taken place weeks, months, sometimes years beforehand, unnoticed, the termination of the disease being then, while the antecedent process was going on, determined?

In watching diseases, both in private houses and in public hospitals, the thing which strikes the experienced observer most forcibly is this, that the symptoms or the sufferings generally considered to be inevitable and incident to the disease are very often not symptoms of the disease at all, but of something quite different —of the want of fresh air, or of light, or of warmth, or of quiet, or of cleanliness, or of punctuality and care in the administration of diet, of each or of all of these. And this quite as much in private as in hospital nursing.

The reparative process which Nature has instituted and which we call disease, has been hindered by some want of knowledge or attention, in one or in all of these things, and pain, suffering, or interruption of the whole process sets in.

If a patient is cold, if a patient is feverish, if a patient is faint, if he is sick after taking food, if he has a bed-sore, it is generally the fault not of the disease, but of the nursing.

WHAT NURSING OUGHT TO DO.

I use the word nursing for want of a better. It has been limited to signify little more than the administration of medicines and the application of poultices. It ought to signify the proper use of fresh air, light, warmth, cleanliness, quiet, and the proper selection and administration of diet—all at the least expense of vital power to the patient.

NURSING THE SICK LITTLE UNDERSTOOD.

It has been said and written scores of times, that every woman makes a good nurse. I believe, on the contrary, that the very elements of nursing are all but unknown.

By this I do not mean that the nurse is always to blame. Bad sanitary, bad architectural, and bad administrative arrangements often make it impossible to nurse. But the art of nursing ought to include such arrangements as alone make what I understand by nursing, possible.

NURSING THE WELL.

The very elements of what constitutes good nursing are as little understood for the well as for the sick. The same laws of health or of nursing, for they are in reality the same, obtain among the well as among the sick. The breaking of them produces only a less violent consequence among the former than among the latter,—and this sometimes, not always.

It is constantly objected,—"But how can I obtain this medical knowledge? I am not a doctor. I must leave this to doctors."

VENTILATION AND WARMING.

The very first canon of nursing, the first and the last thing upon which a nurse's attention must be fixed, the first essential to a patient, without which all the rest you can do for him is as nothing, with which I had almost said you may leave all the rest alone, is this: TO KEEP THE AIR HE BREATHES AS PURE AS THE EXTERNAL AIR, WITHOUT CHILLING HIM. Yet what is so little attended to? Even where it is thought of at all, the most extraordinary misconceptions reign about it. Even in admitting air into the patient's

room or ward, few people ever think, where that air comes from. It may come from a corridor into which other wards are ventilated, from a hall, always unaired, always full of the fumes of gas, dinner, of various kinds of mustiness; from an underground kitchen, sink, washhouse, water-closet, or even, as I myself have had sorrowful experience, from open sewers loaded with filth; and with this the patient's room or ward is aired, as it is called —poisoned it should be rather said. Always air from the air without, and that, too, through those windows, through which the air comes freshest. From a closed court, especially if the wind does not blow that way, air may come as stagnant as any from a hall or corridor.

Again, a thing I have often seen both in private houses and institutions. A room remains uninhabited; the fire-place is carefully fastened up with a board; the windows are never opened; probably the shutters are kept always shut; perhaps some kind of stores are kept in the room; no breath of fresh air can by possibility enter into that room, nor any ray of sun. The air is as stagnant, musty, and corrupt as it can by possibility be made. It is quite ripe to breed smallpox, scarlet fever, diphtheria, or anything else you please.

Yet the nursery, ward, or sick room adjoining will positively be aired (?) by having the door opened into that room. Or children will be put into that room, without previous preparation, to sleep.

WITHOUT CHILL.

With a proper supply of windows, and a proper supply of fuel in open fire-places, fresh air is comparatively easy to secure when your patient or patients are in bed. Never be afraid of open windows then. People don't catch cold in bed. This is a popular fallacy. With proper bed-clothes and hot bottles, if necessary, you can always keep a patient warm in bed, and well ventilate him at the same time.

But a careless nurse, be her rank and education what it may, will stop up every cranny and keep a hot-house heat when her patient is in bed,—and, if he is able to get up, leave him comparatively unprotected. The time when people take cold (and there are many ways of taking cold, besides a cold in the nose),

is when they first get up after the two-fold exhaustion of dressing and of having had the skin relaxed by many hours, perhaps days, in bed, and thereby rendered more incapable of re-action. Then the same temperature which refreshes the patient in bed may destroy the patient just risen. And common sense will point out, that, while purity of air is essential, a temperature must be secured which shall not chill the patient. Otherwise the best that can be expected will be a feverish re-action.

To have the air within as pure as the air without, it is not necessary, as often appears to be thought, to make it as cold.

In the afternoon again, without care, the patient whose vital powers have then risen often finds the room as close and oppressive as he found it cold in the morning. Yet the nurse will be terrified, if a window is opened.

OPEN WINDOWS.

I know an intelligent, humane house surgeon who makes a practice of keeping the ward windows open. The physicians and surgeons invariably close them while going their rounds; and the house surgeon very properly as invariably opens them whenever the doctors have turned their backs.

In a little book on nursing, published a short time ago, we are told, that, "with proper care it is very seldom that the windows cannot be opened for a few minutes twice in the day to admit fresh air from without." I should think not; nor twice in the hour either. It only shows how little the subject has been considered.

WHAT KIND OF WARMTH DESIRABLE.

Of all methods of keeping patients warm the very worst certainly is to depend for heat on the breath and bodies of the sick. I have known a medical officer keep his ward windows hermetically closed. Thus exposing the sick to all the dangers of an infected atmosphere, because he was afraid that, by admitting fresh air, the temperature of the ward would be too much lowered. This is a destructive fallacy.

To attempt to keep a ward warm at the expense of making the

sick repeatedly breathe their own hot, humid, putrescing atmosphere is a certain way to delay recovery or to destroy life.

BEDROOMS ALMOST UNIVERSALLY FOUL.

Do you ever go into the bed-rooms of any persons of any class, whether they contain one, two, or twenty people, whether they hold sick or well, at night, or before the windows are opened in the morning, and ever find the air anything but unwholesomely close and foul? And why should it be so? And of how much importance it is that it should not be so? During sleep, the human body, even when in health, is far more injured by the influence of foul air than when awake. Why can't you keep the air all night, then, as pure as the air without in the rooms you sleep in? But for this, you must have sufficient outlet for the impure air you make yourselves to go out; sufficient inlet for the pure air from without to come in. You must have open chimneys, open windows, or ventilators; no close curtains round your beds; no shutters or curtains to your windows, none of the contrivances by which you undermine your own health or destroy the chances of recovery of your sick.

WHEN WARMTH MUST BE MOST CAREFULLY LOOKED TO.

A careful nurse will keep a constant watch over her sick, especially weak, protracted, and collapsed cases, to guard against the effects of the loss of vital heat by the patient himself. In certain diseased states much less heat is produced than in health; and there is a constant tendency to the decline and ulitmate extinction of the vital powers by the call made upon them to sustain the heat of the body. Cases where this occurs should be watched with the greatest care from hour to hour, I had almost said from minute to minute. The feet and legs should be examined by the hand from time to time, and whenever a tendency to chilling is discovered, hot bottles, hot bricks, or warm flannels, with some warm drink, should be made use of until the temperature is restored. The fire should be, if necessary, replenished. Patients are frequently lost in the latter stages of disease from want of attention to such simple precautions. The nurse may be trusting to the patient's

diet, or to his medicine, or to the occasional dose of stimulant which she is directed to give him, while the patient is all the while sinking from want of a little external warmth. Such cases happen even during the height of summer. This fatal chill is most apt to occur towards early morning at the period of the lowest temperature of the twenty-four hours, and at the time when the effect of the preceding day's diets is exhausted.

Generally speaking, you may expect that weak patients will suffer cold much more in the morning than in the evening. The vital powers are much lower. If they are feverish at night, with burning hands and feet, they are almost sure to be chilly and shivering in the morning. But nurses are very fond of heating the foot-warmer at night, and of neglecting it in the morning, when they are busy. I should reverse the matter.

All these things require common sense and care. Yet perhaps in no one single thing is so little common sense shown, in all ranks, as in nursing.

COLD AIR NOT VENTILATION, NOR FRESH AIR A METHOD OF CHILL.

The extraordinary confusion between cold and ventilation, even in the minds of well educated people, illustrates this. To make a room cold is by no means necessarily to ventilate it. Nor is it at all necessary, in order to ventilate a room, to chill it. Yet, if a nurse finds a room close, she will let out the fire, thereby making it closer, or she will open the door into a cold room, without a fire, or an open window in it, by way of improving the ventilation. The safest atmosphere of all for a patient is a good fire and an open window, excepting in extremes of temperature. (Yet no nurse can ever be made to understand this.) To ventilate a small room without draughts of course requires more care than to ventilate a large one.

NIGHT AIR.

Another extraordinary fallacy is the dread of night air. What air can we breathe at night but night air? The choice is between pure night air from without and foul night air from within. Most people prefer the latter. An unaccountable choice. What will they say if it is proved to be true that fully one-half of all the

disease we suffer from is occasioned by people sleeping with their windows shut? An open window most nights in the year can never hurt any one. This is not to say that light is not necessary for recovery. In great cities, night air is often the best and purest air to be had in the twenty-four hours. I could better understand in towns shutting the windows during the day than during the night, for the sake of the sick. The absence of smoke, the quiet, all tend to making night the best time for airing the patients.

SMOKE.

If we are to preserve the air within as pure as the air without, it is needless to say that the chimney must not smoke. Almost all smoky chimneys can be cured—from the bottom, not from the top. Often it is only necessary to have an inlet for air to supply the fire, which is feeding itself, for want of this, from its own chimney. On the other hand almost all chimneys can be made to smoke by a careless nurse, who lets the fire get low and then overwhelms it with coal; not, as we verily believe, in order to spare herself trouble (for very rare is unkindness to the sick), but from not thinking what she is about.

AIRING DAMP THINGS IN A PATIENT'S ROOM.

In laying down the principle that the first object of the nurse must be to keep the air breathed by her patient as pure as the air without, it must not be forgotten that everything in the room which can give off effluvia, besides the patient, evaporates itself into his air. And it follows that there ought to be nothing in the room, excepting him, which can give off effluvia or moisture. Out of all damp towels, etc., which become dry in the room, the damp, of course, goes into the patient's air. Yet this "of course" seems as little thought of, as if it were an obsolete fiction. How very seldom you see a nurse who acknowledges by her practice that nothing at all ought to be aired in the patient's room, that nothing at all ought to be cooked at the patient's fire!

CHAMBER UTENSILS WITHOUT LIDS.

The use of any chamber utensil *without a lid* should be utterly abolished, whether among sick or well. You can easily convince

yourself of the necessity of this absolute rule, by taking one with a lid, and examining the under side of that lid. It will be found always covered, whenever the utensil is not empty, by condensed offensive moisture. Where does that go, when there is no lid?

FUMIGATIONS.

Let no one ever depend upon fumigations, "disinfectants," and the like, for purifying the air. The offensive thing, not its smell, must be removed. A celebrated medical lecturer began one day, "Fumigations, gentlemen, are of essential importance. They make such an abominable smell that they compel you to open the window." I wish all the disinfecting fluids invented made such an "abominable smell" that they forced you to admit fresh air. That would be a useful invention.

HEALTH OF HOUSES.—FIVE POINTS ESSENTIAL.

There are five essential points in securing the health of houses:

1. Pure air.
2. Pure water.
3. Efficient drainage.
4. Cleanliness.
5. Light.

Without these, no house can be healthy. And it will be unhealthy just in proportion as they are deficient.

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